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ABSTRACT

This handbook describes the Community Connections '95 project, undertaken by members of Washington state's Whatcom County Tech Prep Consortium to help teachers bring workplace relevance to their classrooms, and provides lesson activities developed by the participants. The first part reviews the project, indicating that 53 educators were placed with 50 businesses, spending 1 day at the worksites to discuss and develop lesson activities. This part also provides a list of participants; strategies for using the handbook; sample brochures, handouts, agenda, and evaluation instruments; and comments from business and educator evaluations of the project. The second part presents 43 workplace applications lesson plans developed in the project organized into the following five career pathways: arts and communication, business and marketing, health and human services, technology and industry, and science and natural resources. For each lesson plan, the handbook provides a profile of the business involved; the title, preparing instructor, and suggested grade level of the lesson; a description of the skills applied; the state learning goals covered; the specific goals for student learning; the amount of time needed to complete the lesson; a list of materials needed; an overview of activities and directions for completing them; and suggested assessment methods. (AJL)

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ED 399 986

COMMUNITY CONNECTIONS

WORKPLACE APPLICATIONS HANDBOOK

A BUSINESS & EDUCATION PARTNERSHIP PROJECT

JC 960 577

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Whatcom County Tech Prep Consortium

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Community Connections Workplace Applications Handbook 1995-96

Dear User,

This *Workplace Applications Handbook* is the result of a pilot project of the Workplace Applications Model for the members of the Whatcom County Tech Prep Consortium. Our local Consortium expanded on the partnership/job shadow models used by the South King County Tech Prep Consortium and the Richland/Tri-Cities area. We are thankful for all the support, encouragement and sharing that occurred between all of these partnership efforts. Our project was very successful, but only because we learned so much from those who had gone before us. We have learned a great deal from our own project experiences and it is our intent to build on what we have learned, repeat the process and expand the model.

This handbook is meant to be a tool that teachers can use to connect the classroom to the world of work. The teachers that were part of this pilot project worked with their business partners to design lesson activities that they then used in their classroom. As you begin to use some of the lessons to bring workplace relevance to your classroom, take the time to send me a note to let me know if this book was useful for you. Please feel free to share the lesson ideas with other teachers. We encourage you to make copies if you want...we all learn from the great ideas shared by others!

If you use or adapt this model for your own area, please let me know how it worked. We are continuing to gather evaluation data on this project, the process and the product.

Any suggestions or comments that you may have are welcome. Please send your comments to the address below. Good luck connecting *your* classroom to the world of work.

Linda

Linda Cowan, Director
Whatcom County Tech Prep Consortium

237 W. Kellogg Road
Bellingham, WA 98226

(360) 676-2170 ext. 3308
Fax (360) 738-6165

Workplace Applications Handbook

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Community Connections '95
Acknowledgments

Linda Cowan	Community Connections Project Director Whatcom County Tech Prep Consortium
Deborah Granger	Project Co-Facilitator Career Specialist, Bellingham High School

Special Thanks:

To Chris Stone-Ewing for her "can-do" spirit in making the Workplace Applications Project such a success the first time around and her willingness and encouragement to the rest of us to give it a try!!

To the teachers, employers and workers that participated in the 1995-96 pilot of this model for their courage to give *Community Connections Business-Education Partnerships* a try. There were many unknowns and much to learn as we worked through this process together and it was obvious that their team spirit was alive and well. Their enthusiastic input and thoughtful feedback have contributed to significant process improvements and has made *Community Connections '96-97* a reality.

To Ray Harry and the Tech Prep Steering Committee for believing enough in the importance of this project to provide us with the grant funds so that we could make our idea a reality.

To all the Whatcom County community service and business organizations who opened their doors to the *Community Connections* project and volunteered their business members to serve as partners with the teachers:

Bellingham Rotary
Bellingham Bay Rotary
Mt. Baker Rotary
Sunrise Rotary
Whatcom North Rotary
Whatcom Women in Business
Soroptomist International
Whatcom/Bellingham Chamber of Commerce

This project would not have been possible without the financial support and guidance of the following state and local leaders:

Washington State Tech Prep Steering Committee

Rob Fieldman	Workforce Training and Education Coordinating Board
Ray Harry	State Board for Community and Technical Colleges
Carilyn Norris	Office of Superintendent of Public Instruction

Whatcom County Tech Prep Consortium Leadership Team

Executive Leadership Council

Harold Heiner, President	Whatcom Community College
Desmond McArdle, President	Bellingham Technical College
Karen Morse, President	Western Washington University
Mark Johnson, Superintendent	Nooksack Valley School District
Gerald Hunter, Superintendent	Mount Baker School District
Howard Heppner, Superintendent	Lynden School District
Donald Bauthues, Superintendent	Meridian School District
Dale Kinsley, Superintendent	Bellingham School District
Roger Lehnert, Superintendent	Ferndale School District
Gordon Dolman, Superintendent	Blaine School District
Gary Kamps, Superintendent	Lynden Christian School District
John Miller, Refinery Manager	Tosco Northwest
Jim Pearson, Executive Director	Society of Photo-optical Instrumentation Engineers
John Hayward, Administrator	St. Joseph Hospital
Dave Tanonis, Vice President	Heath Tecna Aerospace
Dallas Childress, Vice President	VECO Corporation - Engineering Division
James Frederick, Sr. Vice President	Intalco Aluminum Corporation
Dave Ennen, Vice President	Ennen Foods (Grocery Business)
Jim Clevenger, Marketing Director	Bellis Fair Mall
Gerry Millman, Manager	Great Western Lumber
David Green, Plant Manager	Dean Foods-Vegetable Company (Food Processing)

Steering Committee

Dr. Katherine Crandall, Vocational Director	Bellingham School District
Paula Graham, Vocational Director/Teacher	Mount Baker High School
Janell Massey, Vocational Director/Teacher	Blaine High School
Bill Roberts, Dean (Trades & Industry)	Bellingham Technical College
Alex Kosmides, Deputy Director	Private Industry Council
Barbara Korst, Job Service Center	Employment Security Office
Debbie Kiene, Private Banking Assistant	Key Bank
Brad Owens, Area Coordinator	IBEW (Electrical Workers Union)
Stan Parker, Training Instructor	NW Carpenters Association
Greg Iwasaki, General Manager	Vangard Northwest
Lori Lennon, Sr. Secretary	Lone Star Energy
Robert Janyck, Director of Programs	Bellingham/Whatcom County Chamber of Commerce
Janet Pen, Parent	Sehome High School

Education Council

Bob Jones, Principal & Curt Byrnes, Assist. Principal	Bellingham High School
Dan Newell, Principal	Blaine High School
Elvis Dellinger, Principal	Ferndale High School
Ken Axelson, Principal & Keith Collins, Assist. Principal	Lynden High School
Jim Kistner, Principal	Meridian High School
Brian Rae, Principal & Jeff Pietila, Assist. Principal	Mount Baker High School
Mark Venn, Principal	Nooksack Valley High School
Ron Polinder, Principal	Lynden Christian High School
Larry Brown, Principal & Clarence Lavarias, Assist. Principal	Sehome High School
Patty McKeown, Dean	Bellingham Technical College
Bill Christopher, Dean	Whatcom Community College

For further information about...

COMMUNITY CONNECTIONS '95
Workplace Applications Handbook

Please contact...

Linda Cowan, Director
Whatcom County Tech Prep Consortium
Whatcom Community College
237 W. Kellogg Road
Bellingham, WA 98226
(360) 676-2170, x3308
Fax (360) 738-6165

Consortium Schools...

If you have specific questions about a lesson/activity please feel free to contact the teacher directly at the high school number listed below.

Blaine High School	(360) 332-6045
Bellingham High School	(360) 676-6471
Ferndale High School	(360) 384-9211
Lynden High School	(360) 354-4401
Lynden Christian High School	(360) 354-3221
Meridian High School	(360) 398-8111
Mount Baker High School	(360) 592-5151
Nooksack Valley High School	(360) 988-2641
Sehome High School	(360) 676-6481
Bellingham Technical College	(360) 738-0221
Whatcom Community College	(360) 676-2170

Community Connections '95
Workplace Applications Handbook

Process

Whatcom County Tech Prep Consortium

COMMUNITY CONNECTIONS PROJECT
GENERAL INFORMATION

The Community Connections and Workplace Applications project has been born of the need to bring workplace relevance to our classrooms. The intent of this project is to connect the classroom to the world of work through the broad curricular eyes of academic and vocational educators from high schools and colleges.

Teachers need first hand experience of the workplace so that they can design and include classroom activities, exercises, and projects that are applicable to the workforce. This in turn will help students see the rigor, both academic and technical, that is required in the world they are preparing to enter.

The project gives employers an opportunity to tell education what they expect from an employee in terms of skills as well as attributes. Through their teachers experiences students will be exposed to the types of communication, math, and science skills that are used in daily work processes, and the level of technical competence that is required. This project will provide teachers with examples from the employers world about how teams make decisions, solve problems, and communicate with each other.

The project gives educators an opportunity to share their world of education with local business partners. Business partners will have an opportunity to experience the classroom environment, and the education challenges faced by schools today. Through the partnership effort, the teacher and business person will work together to develop appropriate classroom activities that help bridge the gap between the academic theory taught in the classroom and application of the theory in the work environment.

Community Connections '95 consisted of 53 educators partnered with 50 business representatives. The teachers represented every high school in Whatcom county, as well as, Bellingham Technical College and Whatcom Community College. The business partners represented a "slice" of business life in Whatcom county, from very large high tech companies to very small, entrepreneurial organizations. Each educator spent one day at the worksite with their business partner. While they were there, an informational interview and data collection took place. The partners talked about possible lesson activities that would bring workplace skills/applications back to the classroom for students to experience. Following the shadow, the teacher turned the ideas shared and experienced into a classroom project or activity. When the business partner came to shadow their teacher partner, the lesson was jointly delivered to the students by the partners. The teacher provided the expertise on lesson development appropriate for their students, while the business partner provided the first-hand knowledge and expertise from the work world.

The outcome of this project will be a handbook of lesson activities developed by all 53 teachers during their partnership experience. The handbook will be shared with all teacher and business participants, as well as, copies to all Whatcom county schools. The project will also result in 53 educators who have had first hand experience in the modern world of work and 50 employers that have had the opportunity to tell educators what they need students to know and be able to do to be successful in the work environment.

The Whatcom County Tech Prep Consortium is a partnership of nine high schools (Bellingham, Sehome, Blaine, Ferndale, Lynden, Lynden Christian, Nooksack Valley, Mount Baker, Meridian), Bellingham Technical College, Whatcom Community College, Western Washington University, and business, labor, and community organizations.

Community Connections '95
Education Partners

Arts and Communication

Jessica Dessert	Bellingham High School	English and P.E.
Mary Kanikeberg	Ferndale High School	History and English
Mary Seilo	Ferndale High School	English and Journalism
AnnMarie DeCollibus	Ferndale High School	Art
Welles Bretherton	Ferndale High School	English
Scott Sahagian	Lynden High School	Art
Rockey Johnson	Mt. Baker High School	Art
Dave Hageman	Sehome High School	History
Jeff Michaelson	Sehome High School	English

Business and Marketing

Janet Diener	Bellingham High School	Family & Consumer Sciences
Etta Kirk	Bellingham High School	Family & Consumer Sciences
Bill Brouwer	Lynden Christian High School	History and Economics
Jenny Kubic	Ferndale High School	History and English
Bob VanderHaak	Lynden Christian High School	Business Education
Fred Goodman	Sehome High School	Mathematics and Economics
Lori DeKruyf	Lynden Christian High School	Counselor
Ken Axelson	Lynden High School	Principal
Paulette Charvet	Mt. Baker High School	Business Education
Carolyn Hill	Meridian High School	Family & Consumer Sciences
Patrick Shannon	Nooksack Valley High School	History & English
Steve Johnson	Sehome High School	Assistant Principal
Laurel Kunesh	Whatcom Community College	Displaced Homemakers Program
Joe McAuliffe	Bellingham High School	English

Health and Human Services

Fred Ypma	Lynden Christian High School	English
Jeanne Dorr	Bellingham High School	Health and P.E.
Marcia Leister	Bellingham Technical College	Adult Basic Education
Ruby Mans	Bellingham Technical College	Nursing
Angie Zehnder	Ferndale High School	Science
Mark Murray	Mt. Baker High School	Health
Bob Carson	Lynden High School	Gifted Education
Maurene Fink	Bellingham High School	Special Education/Science
Kathy Wright	Blaine High School	Consumer & Family Sciences

Education Partners (continued)

Science & Natural Resources

Joan Beardsley	Bellingham High School	Science/Chemistry
Tom Moore	Bellingham High School	Science/Biology
Earl Steele	Bellingham Technical College	Fisheries Technology
Fred Wiley	Ferndale High School	Science
Harlan Kredit	Lynden Christian High School	Science/Biology
Mari Knutzen	Lynden High School	Science/Biology

Technology and Industry

John Freal	Blaine High School	Mathematics
Scott Ellis	Blaine High School	Special Education
James Crosetti	Lynden Christian High School	Math and Science
Gale Greer	Blaine High School	Special Education
Scott Smartt	Mt. Baker High School	Mathematics
Kevin Criez	Sehome High School	Technology Education
Jim Nelson	Blaine High School	Technology Education
Greta Kocol	Mt. Baker High School	Mathematics
Holly Koon	Mt. Baker High School	Science
Brad Dallas	Nooksack Valley High School	Mathematics
Cara Carbone	Sehome High School	Mathematics
Brian Rick	Sehome High School	Mathematics
David Tucker	Mt. Baker High School	Science

Community Connections '95
Business Partners

Without the following employers/employees, this Workplace Applications Project would not have been possible. Our sincerest thanks to our business partners for their interest and contribution of time toward connecting our classrooms to their world of work.

Arts and Communication

Becky Raney	Print and Copy	Owner
January Pietila	Lynden Museum	Director
Mary Nichols	Society of Photo-optical Instrumentation Engineers	Human Resources Director
Jeanne McGee	Art of Photography	Owner
Tony Larson	Pulse Publications	Editor/Publisher
Barry Bonifas	Mount Baker Theatre	Director
John Olbrantz	Whatcom Museum	Deputy Director
Bill Quehrn/Dan King	KGMI Radio	Announcer/Marketing & Sales
Jack Keith	Bellingham Herald Newspaper	Editor

Business and Marketing

Tricia Wallis	Key Bank, Fairhaven Branch	Division Support Officer
Cheryl Addicott	Haggen, Inc.	Food Service Manager
Dick Zagelow	Key Bank, Bellingham	Investment Executive
Sharon Baker	Key Bank,.Ferndale Branch	Branch Sales Manager
Dennis Archer	Metcalf, Hodges, Co. PLLC	Accountant
Brent Walker	CB Wholesale	Owner, CEO
Pam Needham	Alicia's Formal Shoppe	Owner, Manager
Roger Long	Key Bank, Bellingham	Commercial Loan Manager
Susie Marino/Lennette Corwin	Key Bank, Lakeway Branch	Branch Manager
Carol Barbo	Key Bank, Blaine Branch	Branch Manager
Susan Everett	Haggen, Inc.	Employment Coordinator
Gerry Millman	Great Western Lumber	Owner, Manager
Diane Bergquist	Key Bank, Lynden Branch	Assistant Branch Manager

Health and Human Services

Kathy Dwyer/Karma Crabtree	Home Port Learning Center (Juvenile Justice System)	Director
Rex Watt	Whatcom Memorial	Funeral Director
Greta Kaas-Lent	Dept. of Social & Health Services	
Shirley Empey	Roberts Medical/Option Care	Quality Improvement Coordinator
Dale Baker	Ferndale Police Department	Chief of Police
Byron Elmendorf	Bellingham Parks & Rec	Director
Lt. Rick Sucee	Bellingham Police Dept.	Detective
Patti Newsted	St. Joseph Hospital	Safety & Education Manager
Mike Fournier	Whatcom Medical Bureau	Vice President Marketing

Business Partners (continued)

Science & Natural Resources

Ingrid Griffin	VECO Engineering	Process Engineer
Pete Granger	WA Farmed Salmon Commission	Executive Director
Jack Foster and Lt. John Billester	Lynden Police Department	Chief of Police and Detective

Technology and Industry

Joe Rieg	Intalco Aluminum Corporation	Process Engineer
Julie Davis	Vangard Northwest	Transition Coordinator
David Evans	VECO Engineering	Senior Process Engineer
Russ VanBuren	Puget Sound Power & Light	Director
Karen Carter/Brad Owens	International Brotherhood of Electrical Workers (IBEW) 191	Training Director and Business Representative
Rob Hoyt	Encogen Northwest/Lone Star Energy	Manager
Carolyn Duim	TCI Cablevision	Production Coordinator
Carolyn Hoepner	VECO Engineering	Process Engineer
Roy Redmond	Heath Tecna Aerospace	Training Administrator & Qual Engineer
Chuck Griffin	VECO Engineering	Senior Automation Designer
Karen Evans	VECO Engineering	Senior Process Engineer
Werner Gerhardt	Intalco Aluminum Corporation	Engineering Manager
Bob Becker/Jerry Allen	Ershigs/Chicago Bridge & Iron	Comptroller/Plant Manager

Whatcom County Tech Prep Consortium
Community Connections '95 Partners

Arts & Communication

Educator	Subject	School	Community Person	Place of Work	Title
Jessica Dessert	English	B'ham High	**Becky Raney**	Print & Copy	Owner
Joe McAuliffe	English	B'ham High	**Eddy Roddy**	KeyBank	Commercial Loan Officer
Mary Kanikeberg	History/English	Ferndale High	**January Pietila**	Lynden Museum	Director
Mary Seilo	English	Ferndale High	**Mary Nichols**	S.P.I.E.	Human Resources Director
AnnMarie DeCollibus	Art	Ferndale High	**Jeanne McGee**	Art of Photography	Owner
Welles Bretherton	English	Ferndale High	**Tony Larso**	Pulse Publication	Editor/Publisher
Scott Sahagian	Art	Lynden High	**Barry Bonifas**	Mount Baker Theatre	Director
Rockey Johnson	Art	Mount Baker High	**John Olbrantz**	Whatcom Museum	Deputy Director
Dave Hageman	History	Sehome High	**Bill Quehrn/Dan King**	KGMI	Announcer/Mrktng & Sales
Jeff Michaelson	English	Sehome High	**Jack Keith**	Bellingham Herald	Editor

Business & Marketing

Educator	Subject	School	Community Person	Place of Work	Title
Janet Diener	Fam.& Consumer Sci	B'ham High	**Tricia Wallis**	KeyBank	Division Support Officer
Etta Kirk	Fam.& Consumer Sci	B'ham High	**Cheryl Addicott**	Haggen	Food Service Manager
Bill Brouwer	History/Economics	Lynden Christian	**Dick Zagelow**	KeyBank	Investment Executive
Jenny Kubic	History/English	Ferndale High	**Sharon Baker**	KeyBank	Branch Sales Manager
Bob VanderHaak	Business Education	Lynden Christian	**Dennis Archer**	Metcalf, Hodges, Inc.	Accountant
Fred Goodman	Business & Math	Sehome High	**Brent Walker**	CB Wholesale, Inc.	CEO, owner
Lori DeKruyf	Counselor/German	Lynden Christian	**Pam Needham**	Alicia's Formal Shoppe	owner/manager
Ken Axelson	Principal	Lynden High	**Roger Long**	KeyBank	Commercial Loan Manager
Paulette Charvet	Business Education	Mount Baker High	**Susie Marino**	KeyBank	Branch Manager
Carolyn Hill	Fam.& Consumer Sci	Meridian High	**Carol Barbo**	KeyBank	Branch Manager
Patrick Shannon	History/English	Nooksack Valley High	**Susan Everett**	Haggen	Employment Coordinator
Laurel Kunesh	Career Guidance	Whatcom Comm.Coll.	**Diane Bergquist**	KeyBank	Asst. Branch Manager

Science & Natural Resources

Educator	Subject	School	Community Person	Place of Work	Title
Joan Beardsley	Chemistry	B'ham High	**Ingrid Griffin**	VECO Engineering	Process Engineer
Tom Moore	Biology	B'ham High	**Pete Granger**	WA Farmed Salmon Comm	Director
Earl Steele	Fisheries Technology	B'ham Tech. College	**Pete Granger**	WA Farmed Salmon Comm	Director
Fred Wiley	Science	Ferndale High	**Pete Granger**	WA Farmed Salmon Comm	Director
Harlan Kredit	Science	Lynden Christian	**Pete Granger**	WA Farmed Salmon	Director

Health, Education & Human Services

Educator	Subject	School	Community Person	Place of Work	Title
Fred Ypma	English	Lynden Christian	**Kathy Dwyer/ Karma Crabtree**	Juvenile Justice, HomePort Learning Center	Director
Jeanne Dorr	Health/PE	B'ham High	**Rex Watt**	Whatcom Memorial	Funeral Director
Marcia Leister	Adult Basic Educ.	B'ham Tech. Coll.	**Greta Kaas-Lent**	DSHS	
Ruby Mans	Nursing	B'ham Tech. Coll.	**Shirley Empey**	Roberts Medic. Option Care	Quality Improvement Coorc
Angie Zehnder	Science	Ferndale High	**Dale Baker**	Ferndale Police Dept.	Chief of Police
Mark Murray	Health	Mount Baker High	**Byron Elmendorf**	Bellingham Parks Dept	Director
Bob Carson	Gifted Education	Lynden High	**Rick Sucee**	Bellingham Police Dept	Lieutenant
Maurene Fink	Spec. Ed/Science	B'ham High	**Patti Newsted**	St. Joseph Hospital	Safety & Education Manage
Kathy Wright	Fam.& Consumer Sci	Blaine High	**Mike Fournier**	Whatcom Medical Bureau	Director

Technology & Industry

Educator	Subject	School	Community Person	Place of Work	Title
John Freal	Math/Science	Blaine High	**Joe Rieg**	Intalco Aluminum	Process Engineer
Scott Ellis	Special Education	Blaine High	**Julie Davis**	Vangard Northwest	Transition Coordinator
James Crosetti	Science/Math	Lynden Christian	**David Evans**	VECO Engineering	Sr. Process Engineer
Gail Greer	Special Education	Blaine High	**Russ VanBuren**	Puget Power	Director
Scott Smartt	Math	Mount Baker High	**Karen Carter/ Brad Owens**	Int'l Brotherhood of Electrical Workers, Loc.191	Training Director/ Business Representative
Kevin Criez	Technology	Sehome High	**Karen Carter/ Brad Owens/ Rob Hoyt**	Int'l Brotherhood of Electric. Workers, Loc.191/ Encogen/Lone Star Energy	Training Director/ Business Representative/ Manager
Jim Nelson	Technology	Blaine High	**Carolyn Duim**	TCI Cablevision	Production Coordinator
Greta Kocol	Math	Mount Baker High	**Carolyn Hoepner**	VECO Engineering	Process Engineer
Holly Koon	Science	Mount Baker High	**Roy Redmond**	Heath Tecna	Training Admin. & Quality Engineer
Brad Dallas	Math/Science	Nooksack Valley	**Chuck Griffin**	VECO Engineering	Sr. Automation Designer

Strategies On How to Use the Handbook

The *Workplace Applications Handbook* is both a product and service developed by education and business partners to help classroom teachers plan real life learning activities (workplace applications) for students. First, as a product it is a compilation of relevant curriculum strategies that may be used with students to meet their various learning needs. Each lesson is planned to help students connect the "world of school" to the "world of work." Next, it is a service intended to help classroom teachers validate the learning process with essential authentic workplace activities so that precious classroom time is truly meaningful and worthwhile for students. The partnership experience has helped teachers answer the often asked student question, "Why do we need to learn this stuff?" It is the intent of the Whatcom County Tech Prep Consortium to offer this partnership experience and lesson plan development to 50 new teachers and business partners each year. The teachers experiences and new lessons will help us continue to update, and expand the contents of the handbook on an annual basis so that the information stays current and a variety of new lessons can be shared between schools.

The handbook is divided into two main sections: *Project Overview Materials*, and *Career Pathway Lessons*. For easier reference, the lessons are then sub-divided into 5 career pathway areas: Arts and Communication, Business and Marketing, Health and Human Services, Science and Natural Resources, Technology and Industry. The five pathways represent those that the Consortium schools have developed in common. This project provided us with our first opportunity to begin linking academic and technical programs to real-world experiences.

Both teachers and employers submitted an application to participate in this partnership project. Their application indicated a career pathway selection - as a teacher, the pathway they felt their curriculum was most closely aligned with, and as a employer, the pathway they felt their business represented. Partners were matched by pathway, representing a cross-section of academic and technical areas and a cross-section of schools. Teachers were placed in areas all over the county, not necessarily in their "own backyard."

As a result of the partnership exchange (job shadow at each partners site) the partners were asked to submit three items for the handbook.

- *Business Profile* - a brief overview about the company they visited.
- *Workplace Interview* - questions asked, answers given during the teachers job shadow at the worksite. The questions and answers provide some insight into "behind the scenes" issues that business often has to deal with.
- *Lesson Plan* - a lesson designed around the partner's experience during their exchange. The lesson is intended to bring a workplace application (skill) back to the classroom so that students can begin to connect their classroom experience to a real-world experience.

Each lesson plan contains several key pieces of information:

- *Career Pathway Focus* (one of five career pathway areas)
- *Subject area* that the lesson represents (Math, Science, English, Fine Arts, etc.)
- *Category* of the lesson related to the subject area (Math = Algebra; Science = Chemistry; English = Journalism, etc.)
- *Washington State Learning Goals* - there are four broad learning goals; teachers tried to connect their lesson to one or more of the goals.
- *Essential Student Learning Elements* - the specific performance objectives related to each of the four State learning goals; teachers identified which learning element(s) was being demonstrated in the lesson.
- *Skills Being Applied (Workplace Application)* - the skills the teacher saw employees using in the workplace. In particular, a math teacher might be looking for how math is used in the workplace; an English teacher looking for applications of writing or communication skills, etc.

Special Note: Each of the lessons in this handbook has been identified as meeting one or more of the Washington State Learning Goals, and Essential Student Learning Elements as established by the Washington State Commission on Student Learning. Our Consortium schools have been working with teachers to begin incorporating the goals and elements throughout their curriculum. The special interest of this project was to help teachers begin connecting Goal 4 (understand the importance of work and how performance, effort, and decisions directly affect career and educational opportunities) with Goals 1 and 2. The next page provides a brief overview about the four education goals. This project was conducted outside the charter of the Commission and is not intended to convey their endorsement of the results. It is our own effort to make further connections.

Users of this *Workplace Applications Handbook* are encouraged to share it with others. It is a good source document for planning individual lessons or units of instruction. There are some excellent ideas shared through the lesson activities that might spark another lesson idea for another teacher. Any of the lessons can be taken from the handbook and teachers are encouraged to personalize them into instructional strategies for their students.

This project has been founded on the basis of collaboration. We encourage you to share the strategies that have worked in your classroom with others. Please send your ideas to:

Whatcom County Tech Prep Consortium
237 W. Kellogg Road
Bellingham, WA 98226

Charting Statewide School Reform

The 1993 Educational Reform Act

The adoption of statewide education reforms by the 1993 Washington State Legislature shines a bright new light on our public schools. Lawmakers established common learning goals for all Washington students – goals intended to raise standards and drive high achievement. To reach these goals, we must build on the best of our education traditions and the brightest of new visions.

The primary goal included in the law is to "provide opportunities for students to become responsible citizens, contribute to their own economic well-being and to their families and communities, and enjoy productive and satisfying lives."

Schools must provide opportunities for students to develop the knowledge and skill essential to...

GOAL 1	*Read* with comprehension, write with skill, and communicate effectively and responsibly in a variety of ways and settings;
GOAL 2	*Know* and apply the core concepts and principles of mathematics; social, physical, and life sciences; civics and history; geography; arts; and health and fitness;
GOAL 3	*Think* analytically, logically, and creatively, and to integrate experience and knowledge to form reasoned judgments and solve problems, and
GOAL 4	*Understand* the importance of work and how performance, effort, and decisions directly affect career and educational opportunities.*

**Goals as laid out in RCW 28A.150.210*

Along with the Commission, many individuals and groups are working on ESHB 1209, including the Governor's Office, Office of Superintendent of Public Instruction, the State Board of Education, the Higher Education Coordinating Board, the Workforce Training and Education Coordinating Board, and many other local and state education advocacy groups.

Community Connections '95
Workplace Applications Handbook

Project Overview

Whatcom County Tech Prep Consortium

You are invited to join educators and business members in our community as we work together to help prepare our students for the rapidly-changing work world.

Community Connections
is a "Win/Win" program
for you, for the educators,
and for the students
in Whatcom County.

"It takes an entire village to raise a child."
African proverb

Whatcom County Tech Prep Consortium Schools

Bellingham High School
Robert Jones, Principal
Sehome High School
Lawrence Brown, Principal
Lynden High School
Ken Axelson, Principal
Lynden Christian High School
Ron Polinder, Principal
Mount Baker High Schools
Brian Rae, Principal
Nooksack Valley High School
Mark Venn, Principal
Meridian High School
Jim Kistner, Principal
Blaine High School
Dan Newell, Principal
Ferndale High School
Elvis Dellinger, Principal
Whatcom Community College
Linda Cowan
Bellingham Technical College
Patty McKeown, Dean

Whatcom County Community Partners

Intalco Aluminium Corporation
Bellis Fair Mall
Haggen, Inc.
Great Western Lumber
Private Industry Council
St Joseph Hospital
Washington Employment Security
Bellingham Parks & Recreation
Society of Photo-Optical Instrumentation Engineers
Northwest Carpenters' Association
Whatcom/Bellingham Chamber of Commerce
Fourth Corner Economic Development Council
International Brotherhood of Electrical Workers #191
Heath Tecna Aerospace
Dean Food & Vegetable
VECO Corporation
Key Bank of Washington
Vanguard Northwest

Members of the following service groups:

Bellingham Rotary
Whatcom North Rotary
Mt. Baker Rotary
Connections
Bellingham Bay Rotary
Sunrise Rotary
Whatcom Women in Business
Soroptomist International

Community Connections

Whatcom County Tech Prep Consortium

Join the Partnership of
Education and Business
in Whatcom County.

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What is Community Connections?

Community Connections establishes partnerships between education and business representatives of our community.

Community Connections *allows you to:*

1. Have the opportunity to voice the needs of your business to the educators as well as to the students (your future employees).
2. Have an educator shadow you for a day to observe first-hand the skills and knowledge needed in your workplace.
3. Go into the clasoom and demonstrate to students and educators what skills and knowledge your business requires from future employees.

Why Community Connections?

If our students are to be prepared to succeed in an increasingly competitive economy with its many technological and global challenges, all members of our community must work together. Community Connections also:

- Provides first-hand experience for educators and students about how academic and technical skills are used in the workplace.
- Expands business awareness of the school/classroom environment.
- Creates a climate of collaboration and support between education and business.

How does it work?

1. Complete the attached application form and return it by phone, fax, or mail by Sept. 15, 1995.
2. Attend a short orientation meeting during the first week of October (date to be announced).
3. Ask to have an educator "shadow" you in your business once during the last weeks of October.
4. Ask to "shadow" an educator once during the first weeks of November.
5. Attend a "reunion" on November 30, 1995 with educators and business members to celebrate partnership projects.

Questions? Call Debbie Granger, Linda Cowan, or your business contact.

Application

Name____________________

Address____________________

street

____

city zip

Employer____________________

Employer Address

____

P.O. box or street address

____

city zip

Phone - Home____________________

Work____________________

FAX____________________

Job Title____________________

Brief Description of your job:

I would like to shadow an education partner from the following career pathway *(see enclosed insert for description of pathways)*

____ Arts & Communication

____ Business & Marketing

____ Health, Education, and Human Services

____ Science and Natural Resource

____ Technology and Industry

Please phone, fax, or mail your completed application to either:

Debbie Granger 676-6472, x 5063
FAX: 671-2271
2020 Cornwall Avenue
Bellingham, WA 98225

Linda Cowan - 676-2170, x 308
FAX: 738-6165
237 W. Kellogg Rd.
Bellingham, WA 98226

Return your application by Sept. 15, 1995

Whatcom County Tech Prep Consortium
Community Connections

What is Whatcom County Tech Prep Consortium and What are its goals?

Tech Prep is a partnership between area high schools, colleges, and apprenticeship programs that prepares students for successful careers. Tech Prep provides a sequence of study allowing high school students to combine the last two years of high school with a two year program at a community/technical college with possible continuation in a related university program. It is designed with business, labor, and educational leaders to help high school students make a successful transition from school to work. Tech Prep allows students to earn college credit for approved high school-level courses.

See the attached Tech Prep brochure for more information.

What is *Community Connections?* Community Connections is a **partnership effort** between education, business, and industry formed to address the need to produce skilled graduates who will be successful in our global workforce.

Why *Community Connections* in Whatcom County?

The primary objective is to create a partnership effort between the private sector and education that addresses the immediate needs for preparing youth for the rapid growth of technology on the job, and includes industry as a major component in the shaping of education and training needed for workers in the future.

Community Connections also works to:

- Facilitate the opportunity to use community and industry resources in Whatcom County to help inform, educate, and motivate students.
- Establish a link for hands-on, real-life applications for both students and educators to show relevancy for learning.
- Increase awareness of the challenges and opportunities in the classroom and in the work place.
- Increase the opportunity for educators and business members to collaborate and cooperate as we work together to prepare our young people for success in our changing world.

over

How might Community Connections work?

A proposed project is the **Educators with Business Partnership Project.** The proposed format and timeline is:

- Educators and community members apply to participate.
- Educators are partnered with a community/business member working in a field or career pathway of interest to them.
- First week of October - An Orientation Meeting would be held to provide overview and specifics of actual exchanges.
- Last two weeks of October - The actual exchange occurs. During the exchange, educators spend a day at the work site with their business partner. Guidelines and activities will be recommended.
- November - Business people in turn spend a day (or portion of the day) at school with their education partner. Both the educator and the business partner collaborate and cooperate to develop a short lesson to be presented in the classroom. The purpose of this lesson would be to show how the classroom learning connects to the competencies required in the workplace.
- Reunion Celebration of Partners - date to be announced. This reunion would be to allow all partners to celebrate, recognize, and showcase their exchange efforts.

Future proposed *Community Connections* activities:

- Longer-term internships for educators in Whatcom County businesses.

- Exchanges between **students and community/business** members.
    - Guest speakers in classrooms, field trips, participation in Career Festivals.
    - Short-term job shadows, informational interviews, etc.
    - Internships (longer-term student placement in community/business.)

By working together, educators and business people in Whatcom County will offer our students the opportunity to develop the skills and knowledge necessary for success in our rapidly changing world.

HOW will *Community Connections* work??

Two major programs:

1. **Educator-Business Exchange**
2. **Student-Business Exchange**

➡ Educator - Business Exchange Partnership Specifics

- **Application Process**
  - both educators and business people apply
- **Career Pathways**
  - focus on area of interest
- **Academic learning meshed with Technical learning**
- **Secondary and Post-Secondary Educators**
- **Equal representation of business *and* education**
- **Orientation prior to actual exchange**
- **Clear guidelines for actual exchange**
  - provides structure yet flexible
- **Follow-up Activity**
  - opportunity to collaborate and cooperate
- **Relationship building**

Community Connections Timeline

July - August	**Promote *Community Connections* to Business members.** **Business members APPLY**
Aug. - Sept.	**Promote *Community Connections* to Educators.** **Educators APPLY**
Sept.	**Educator matched with business member.** **Partnerships formed!**
1st week Oct.	**ORIENTATION Meeting**
last 2 wks. Oct.	**Phase ONE of the Exchange.** **Educator spends a day at the work site with their business partner. (recommended guidelines provided)**
Nov.	**Phase TWO of Exchange. Business person spending a portion of the school day in classroom. Educator and business member cooperate and collaborate to develop short lesson in classroom. (guidelines provided!)**
Nov. 30	**Sharing Session to allow partners to celebrate, recognize, and showcase their exchange efforts! Community dignitaries and media invited.**
April 1996	**Reunion and Pre-Launch Meeting for 96-97!**

Sample Employer Visitation Agenda

ACTIVITY	INFORMATION	CONTACT
Overview of Business	Tour, Video, Brochures, Products/Services, Work-Based Learning	Senior Management
Hiring Practices	Screening, Interviewing, Retraining, Future Skills, Cause for Termination, Work-Based Learning, etc.	Human Resource Official
Employability Skills	Basic Skills, Workplace Ethics, Current/Obsolete Practices, Work-Based Learning	First Line Supervisor
Competencies	Examples of Math, Science, Communications, Technical, SCAN Skills; what classes were most useful, like most/least about job	Employees
Collaborate on Lesson Ideas	Look for "workplace applications"...where do you see academic-technical skills being applied on the job? Examples of workplace skills that could be taught in the classroom?	All personnel contacts and experiences that occur during the exchange; collaboration with business partner ...what could we do together in the classroom?
Exit Interview	Thank-you, discuss follow up options	Visit with business partner and/or Human Resource Personnel.

Business Profile -- Sample

CASEY
INDUSTRIAL

Business Profile:

Casey Industrial has over forty years experience in providing timely and cost effective construction services for a wide range of industries and clients. They manage the engineering, procurement, and construction activities in order to adhere to their budget and schedule. Casey Industrial started its industrial career by building rare metals facilities in Oregon. From these facilities they have expanded nationwide into construction areas such as composite panel plants, sawmills, veneer and chipping plants, and mining.

Casey is one of the few industrial contractors in the world qualified and certified to do high tech Class I contraction. This elite construction service, in the clean rooms of America's high tech industry, is a true testimony to the adaptability of their company.

There are approximately 150 people employed by Casey Industrial. Career opportunities include management positions, trades people, estimators, and clerical positions. Casey sights experience, hard work, motivation, and employees with a "can do" attitude as the main reasons for their success. Employees of Casey Industrial need skills in math, communication, technical report writing, reading, and teamwork.

Workplace Applications Informational Interview

Business ______________________ Contact ______________________
Address ______________________ Phone ______________________
____
______________________ Date of visit ______________________

* * *

Management/Human Resources Questions

Primary products/services: ______________________

What kind of person are you looking for? (personal attributes - employability) ______________________

How do you announce employment opening/recruitment notices? ______________________

What kind of pre-screening do you do? (education/experience/other) ______________________

What type of interviewing do you do? (one on one, team interviews, progressive interviews) ______________________

What are you most common reasons for terminating an employee? ______________________

What are the occupation titles within your workforce? ______________________

What are the skills needed in five years? (workforce of the future) ______________________

What type of retraining do you do? (employee basic skills; technical skills) ______________________

What percentage of your workforce has a four year degree? __________ 2 year degree? __________
High School diploma only? __________ Not high school graduates? __________

What kind of accommodations do you make for people with disabilities?
____

What is the role of employee organizations/unions in your company? ______________________

* * *

First Line Supervisor Questions

Primary products/services: ______________________

What kind of person are you looking for? (personal attributes - employability) ____________________

What type of retraining do you do? (employee basic skills; technical skills) ____________________

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? ____________________

How would you recommend we teach the work ethic to students? ____________________

What is the one thing you wish we would teach our students? ____________________

What is the most valuable skill an employee can bring to your department? (why) ____________________

What processes have become obsolete in the last couple of years? What do we no longer need to teach? ____________________

What do you foresee to be the "future trends" in your business area? ____________________

****

Employee Questions **Job Title** ____________________ **How long on the job?**

What do you like most about your job? ____________________

What do you like least about your job? ____________________

How did you choose this particular line of work? ____________________

What classes did you take in school that were most helpful? (high school, college, training program) _

What classes have been the least helpful? ____________________

What would be a problem situation that you might face in your daily work? How would you handle it? ____________________

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? ____________________

Could you describe 3-5 specific skills that you use regularly on your job? (communication, math, science, technical or SCAN skills) ____

____

____

____

____

****

Work-Based Learning Questions

Are you willing to:

☐ Host Student Tours
☐ Provide Student Internships
☐ Provide Student Job Shadow Opportunities
☐ Provide Opportunities for Informational Interviews
☐ Provide Employee Speakers for the Classroom (career topic, technical expertise, etc.)
☐ Participate in Career Fairs
☐ Host an Educator for a Job Shadow Opportunity
☐ Provide an Internship for an Educator (2 - 6 weeks during the summer)
☐ Provide an Internship for an Educator (3-5 days during the school year)
☐ Invite teachers into your training classes
☐ Provide employees willing to mentor students
☐ Provide employees willing to mentor teachers
☐ Would you like to visit our schools?

How would you like us to contact you regarding Work-Based Learning options? (telephone, letter, specific person in the company, etc.) ____

____

____

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title:

Submitted By: School
(teacher partner)

Business
(business partner)

Career Pathway Focus:

Subject Area: Category:

Suggested Grade Level:

Skills Being Applied *(the workplace application)*:

WA State Student Learning Goal:

Essential Student Learning Element:

Amount of Time Needed to Complete Lesson:

Materials Needed:

Lesson Overview:

Directions for Lesson/Activity/Project:

Suggested Assessment:

Helpful Hints for Preparing the Lesson Plan

1. Please use the lesson plan template. Since there will be over 50 lessons submitted for publication, consistency in style and format is essential.
2. Please use IBM/MAC compatible computer with Word for Windows, 6.0 or greater.
3. Please submit all work neatly done, proofed, spell checked, etc. and ready for publication.
4. To accurately prepare the lesson plan, please refer to the support data in answering the following questions:

Business Profile: will serve as the "cover page" to your lesson plan. See sample profile provided in the support material packet. The profile may be adapted from a business summary, an annual report, business prospectus, business brochure or other marketing materials provided by the company. The profile may be developed through conversation with your business partner and data collected during the informational interview. The profile should provide a brief (one to two paragraphs) overview about the company.

Career Pathway Focus: refer to the list of career pathway titles that have been agreed upon for use by Whatcom county high schools.

Subject Area: areas such as, Math, Science, Communications, Technology, Health, Fine Arts, Business, Social Studies, Family & Consumer Sciences, etc. Your lesson may integrate several subject areas, so list all that apply.

Category: the specific category related to the subject area. For example: Science/Chemistry; Science/Biology; Math/Geometry; Math/Statistics; Fine Arts/Drama; Fine Arts/Music; Business/Economics; Business/Accounting; Family & Consumer/Nutrition; Family & Consumer/Child Development; Social Studies/Psychology; Social Studies/Law.

Suggested Grade Level: high school/9-10th; college; etc.

Skills Being Applied: identify the specific skill(s) you see being *applied in the workplace*. What skill is the employee using? The skill(s) you identify here are the ones that will be reflected in the lesson plan. The following are a few examples of workplace applications skills: SCAN Skills (see list in your packet); technical writing & reading, resource management, synthesizing, critical thinking, problem solving, interpreting data, graphing, estimating, converting fractions, teamwork, clear and concise writing skills, paraphrasing, analyzing process, computer skills, following instructions, adaptability/flexibility, public relations skills, self-directness, group interview skills, product control, data collection & analysis, formulations, thermal process.

Note that the career pathway, subject, category, and skill(s) should all relate to each other and be supported by the lesson plan.

WA State Student Learning Goals: there are four broad education goals developed by the Commission on Student Learning (see information in your packet for details). You just need to name the goal that relates to and supports this particular lesson.

Essential Student Learning Element: these are the specific learning tasks related to each of the four WA State goals. The tasks are still in draft form and somewhat incomplete, so for this assignment just identify the specific learning element (from those listed in the informational packet) that supports the learning goal and is related to the lesson. If you are unable to identify a specific learning element from the list, then just leave this section blank.

Time Needed: one class period, a week, ongoing, etc.

Materials Needed: provide a list of any materials needed that facilitate the successful implementation of this lesson. Please also include a clear, reproducible copy of any special activity pages, handouts, or support materials that are used with this lesson.

Lesson Overview/Description: one paragraph that gives the reader a broad view of the lesson activity and explains how the skill was being used in the workplace (what you saw happening).

Directions: the step by step process that will help other educators successfully implement your lesson. Provide enough information so that the reader can clearly understand how you intend the lesson to be structured. Also provide helpful hints that would allow the lesson to be implemented in another classroom environment.

Suggested Assessment: how will you know the student has been successful in applying the skill? Consider "alternative" assessment tools (other than paper/pencil tests) -- an assignment or project (individual or team) that requires the student to apply the knowledge/skill learned; a demonstration of the student's ability.

You are cordially invited to attend

the

Community Connections '95 Celebration

Team Project Reports

Tuesday, November, 28, 1995
6:00 to 9:30 p.m.
Mount Baker Theatre
104 N. Commercial Street
Bellingham, WA 98225

Invite your co-workers and join your colleagues for a dessert reception in the lobby of the elegantly restored Mount Baker Theatre followed by team reports in the Theatre.

6:00 p.m. - Reception with optional tour of Theatre at 6:30 p.m.
7:00 p.m. - Program begins in the Theatre
Randy Dorn, School-to-Career Educational Reform, Keynote
Team Project Reports begin at 7:30 p.m.

Join educators and community leaders as we celebrate the success of this inaugural business-education partnership project in Whatcom County.

County Tech Prep Consortium showcases projects from its Community Connections '95 program

More than 100 Whatcom County educators and business members recently showcased their projects from the Community Connections '95 program. The Whatcom County Tech Prep Consortium representing all high schools, Bellingham Technical College, and Whatcom Community College, sponsored this partnership program, which culminated Nov. 28, at the elegantly restored Mount Baker Theatre

Community Connections '95, was an inaugural education/business partnership program consisting of 52 educators partnered with 50 business representatives. The teachers represented every high school in Whatcom County, as well as Bellingham Technical College and Whatcom Community College. The business partners represented a "slice" of business life in Whatcom County — from very large high tech companies to very small, niche entrepreneurial organizations.

Step one of the exchange involved each educator spending one day at the worksite with their business partner observing the skills, knowledge and attributes necessary for success in the partner's worksite. The business person then returned to the classroom during Step two to assist the educator in delivering a lesson activity that the two had jointly developed. The teachers provided the expertise on lesson development appropriate for their students, while the business partner provided the first-hand knowledge and expertise from the work world.

Through the partnership effort, the teacher and business person will work together to develop appropriate classroom activities that help bridge the gap between the academic theory taught in the classroom to the application of the theory in the work environment. Business partners will have an opportunity to experience the classroom environment and the education challenges faced by schools today.

Barry Bonifas, Executive Director of the Mount Baker Theatre Center, a participant in this inaugural partnership project, graciously offered the theatre for the evening celebration. Each partnership team presented project reports to the education, business, government and legislative leaders in the audience. Guests gathered in the restored lobby of the elegant Mount Baker Theatre for a dessert reception.

The Celebration began in the Theatre at 7:00 p.m. with Randy Dom as the keynote speaker. Mr. Dom, a motivational and educational speaker, provided an overview of educational reform efforts throughout the state and nation. Team reports began at 7:30 p.m.

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COMMUNITY CONNECTIONS
SURVEY RESULTS

BUSINESS PERSPECTIVE

MOST SIGNIFICANT THING YOU LEARNED...

- I was extremely impressed with Ferndale High School & the caring and competence of all the teachers I met -- especially my partner.
- I was impressed with the willingness of teachers and staff to get a feel of what business is thinking. Impressed with the quality of students.
- Getting high school students interested & excited about learning is not an easy task.
- The opportunity to share the ups and downs of "credit" to young people. They are my future customers & it's vital to get them off to a good start.
- I learned that teachers work more than an 8 hour work day. I learned that I have relevant information to share.
- The variety of skills that we've (employees) identified as a result of the teacher's visit to our office, and looking at techniques to "teach" those skills.
- The requirements for lesson planning. The difficulty of presenting real life data in a teaching environment. The amount of time needed to teach new information.
- Connecting the students to the "outside" world seems to be critically important.
- The kids were truly interested in your sharing information with them.
- How difficult it must be to be a teacher.

As a result of your experience, how have you and your workplace environment been impacted?

- It was a great experience having a teacher here for a day. My employees really had to think of their jobs from a completely different angle. The question of what classes were helpful in school really made them think. They seem to take their skills on the job more seriously now.
- We've begun to re-evaluate connections in our business.
- The experience was too short and limited to impact Intalco. We had seven maintenance people meet with the teacher to discuss the impact of high school education on a work life after high school, which was very beneficial for those individuals.
- Have realized the need for our business to get out into the community & talk about hiring possibilities & the skills needed.
- My co-workers, as well as myself, now know that we have skills that are valuable and that can be taught to kids and other adults.
- It has made me aware of how much I take my education for granted, and how technical my job actually is.
- I look at positions in a new way...what really is entry level, what are our competencies.
- I certainly appreciate the diversity of knowledge that my customers have. The students showed me a wide range of experience or "lack of" in banking...and I heard it from the educator/partner. There is nothing like first-hand information to bring it (education) to life.

EDUCATION

What did you like the most about the partnership experience?

- **Both of us learned to appreciate each other roles more and how we can help prepare students for the work world.**
- **It was great to spend a day at an engineering firm. I met former students who have made a living out of the science they initially learned here at BHS. I made a new friend in my engineering partner.**
- **The effort & opportunity for business and education to gain some understanding of each others worlds.**
- **Team teaching -- the actual doing of the lesson & seeing our planning put into action.**
- **Seeing the other side of education (or the aftermath); appreciation of openness to partnerships.**
- **I really enjoyed the day I shadowed my partner during his workday. They wear many "hats" in their business & I wasn't aware of the variety of services they provide.**
- **I loved the opportunity to get out of the classroom to visit a business site where I could see in action many of the skills I emphasize in the classroom.**
- **I enjoyed sharing my classroom and school with someone new to both.**
- **We each brought our strengths to an activity/lesson; team-teaching was most gratifying. Bringing actual workplace activities, presented by a representative of the workplace, into the class was powerful for the students and myself.**
- **The chance to see the application of skills that are learned at school and used in the workplace.**
- **I enjoyed watching the students get involved with the lesson we designed. They had fun and learned that they all need to do their part and work together (team work skills).**

CAREER PATHWAYS

- ARTS & COMMUNICATION
- BUSINESS & MARKETING
- HEALTH, EDUCATION & HUMAN SERVICES
- TECHNOLOGY & INDUSTRY
- SCIENCE & NATURAL RESOURCES

TOMORROW
NEVER LOOKED SO GOOD!

CAREER PATHWAY TITLES
(occupational clusters)

The career pathway titles listed below, are the titles being recommended for use in Whatcom county high schools. They also represent the most common titles used in Washington State schools.

Arts and Communication

Subtitle: Performing and Applied Arts

Programs of study related to the humanities and to the performing, visual, literary and media arts. These may include, but need not be limited to, architecture, creative writing, film and cinema studies, fine arts, drama/theater, graphic design and production, artist, journalism, newspaper/magazine, technical writing, illustrator, foreign languages, radio and television broadcasting, advertising and public relations, music performance and production.

Business and Marketing

Subtitle: Business and Administrative Services

Programs of study related to the business environment. These may include, but need not be limited to, entrepreneurship, sales, marketing, hospitality and tourism, computer/information systems, finance, accounting, administration, office management, personnel management, economics, fashion merchandising, banking, trade and government services.

Health and Human Services

Subtitle: Health, Education and Human Services

Health covers programs of study related to the promotion of health as well as the treatment of injuries, conditions, and disease. These may include, but need not be limited to, medicine, dentistry, nursing, therapy and rehabilitation, nutrition, fitness and hygiene, pharmacology, emergency medical systems, medical supplies and equipment. **Human Services** covers programs of study related to economic, political, and social systems. These may include, but need not be limited to, education, law and legal studies, law enforcement, public administration, fire protection services, child and family services, religion and social services, sociology and psychology, counseling services, international public relations, recreation and sports management.

Because this pathway is very large, some schools may choose to subdivide into 2 separate pathway programs. In this case, appropriate ***Subtitles would be: Health Care Services***
Human Services

Technology and Industry

Subtitle: Industrial Technology and Engineering

Programs of study related to the technologies necessary to design, develop, install, or maintain physical systems. These may include but need not be limited to, engineering and related technologies, drafting/CAD, mechanics and repair, manufacturing technology, precision production and construction, materials science, architectural design, machine technology, robotics, computer science and research science, electronics.

Science and Natural Resources

Subtitle: Science and Environmental Resources

Programs of study related to the environment and natural resources. These may include, but need not be limited to, agriculture, earth sciences, environmental sciences, research science, fisheries management, forestry, horticulture and wildlife management, outdoor recreation (parks, etc.) management, urban planning.

Note: sometimes the Science and Technology pathway programs are grouped together. In this case, an appropriate ***Subtitle would be: Sciences and Technology***

ARTS & COMMUNICATION

TECH PREP

CAREER PATHWAYS

the ART of PHOTOGRAPHY
BY JEANNE MCGEE-PHOTOGRAPHIC ARTIST

Business Profile:

the ART of PHOTOGRAPHY is a home based business, owned and operated by the photographer, Jeanne McGee. The specialty of the studio is personally designed "lifestyle" portraits, made to be displayed in your home as a piece of art.

She creatively photographs families, children, pets, individuals, high school seniors and weddings. A portrait consultation is critical in understanding the needs and wants of her clients before she begins to photograph the session. Finished portraits can be selected from her Masterpiece canvases, up to a 40X60 in size, where the portrait is adhered to canvas on stretcher bars and finished with acrylic gel, brush stroked onto the canvas, with a layer of oil glaze for depth and lacquer spray for highlights. Also available are Classic canvas on art board, hand-colored B&W "Impressionist" images up to 20X24 in size and standard gift sizes, 8X10 and smaller.

The studio is located on the fringe of Bellingham, at the old family home, on 2 acres. Clients can have their portraits taken either in the indoor studio, or on the property, where she has set up a "portrait park", using different areas of the property to create different backdrops. She will also travel to any area, including the clients home, to capture her clients in their natural surroundings, hence "lifestyle" portraits.

All business price lists, newsletters & postcards, and various business bookkeeping is done on premises using a computer and laser printer. More control is possible and less cost is accumulated.

To keep abreast in her field, Jeanne attends photographic seminars, is a member of the Professional Photographers of Washington and the Professional Photographers of America organizations and attends their annual conventions. She competes with her photographs each year in professional print competitions and has won awards for her work. She is a member of the Whatcom Women in Business, on the board of directors for Allied Arts of Whatcom Co., is the NW district representative for the Professional Photographers of Washington, a member of Women's Professional Network, and teaches photography classes to local grade schools through the Artist in the Community program.

She predicts continuing growth of the small photographic business in the next year. With a strong marketing program in place, she hopes to hire a wedding consultant by summer of '96 and would like to implement an apprentice program in the future.

Workplace Applications Informational Interview

Business: the ART of PHOTOGRAPHY
Address: 4043 Northwest Rd.
Bellingham, WA 98226

Contact: Jeanne McGee
Phone: (360) 647-8137
Date of Visit: Oct. 20, 1995

****

Management/Human Resources Questions

Primary products/services: Portrait photography of children, families, pets, high school seniors, individuals, weddings. Finished products include canvassed wall portraits, hand-colored B&W images, folios and notecards.

What kind of person are you looking for? (personal attributes - employability): Enjoys people, especially children and animals, is efficient, neat and has a good "personality" on the phone. Someone who has a flexible schedule (needs to be able to work some evenings and week-ends). Someone who can follow through and finish a task and meet deadlines.

How do you announce employment opening/recruitment notices? Word of mouth, ad in local newspapers asking for resumes.

What kind of pre-screening do you do? (education/experience/other) Look over resumes, call references. Do a phone interview of applicant (this is extremely helpful as to hearing how the applicant handles themselves on the phone).

What type of interviewing do you do? Face to face, just getting to know the person. A questionnaire (with open-ended questions, such as, "If a client called and wanted to talk to me (the owner) to place an order, but I was out of town for the next several days, what would you do") is then filled out by applicant.

What are your most common reasons for terminating an employee? Poor "service" being given to clients. Constantly being unable to work during times that are convenient with clients. Unable to do their tasks correctly after several training sessions.

What are the occupation titles within your workforce? Wedding consultant; Receptionist; Production coordinator; Print finisher; Photographer.

What are the skills needed in five years? (workforce of the future) Computer skills in retouching negatives/print enhancement.

What type of retraining do you do? (employee basic skills; technical skills) How to answer the phone correctly (it is generally the first impression a client has of my studio). Sales of wall portraiture.

What percentage of your workforce has a four year degree? 0%; two year degree? 100%; high school diploma only? 0%; not high school graduates? 0%

What kind of accommodations do you make for people with disabilities? Wheel chair accessible.

What is the role of employee organizations/unions in your company? There are no unions, but I feel membership in the Professional Photographers of WA is a must.

First Line Supervisor Questions

All answers would be the same as above.

Primary products/services:

What kind of person are you looking for? (personal attributes - employability)

What type of retraining do you do? (

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? None

How would you recommend we teach the work ethic to students? By rewarding students with recognition/praise when they do ***their*** best work. We must remember that even if a thing isn't done the same way we would do it, if the end result is good, that is what counts. Also, do not compare students to each other, but evaluate them on *their* efforts and progress.

What is the one thing you wish we would teach our students? To take pride in their accomplishments. To be so proud, they'd sign their name in neon to show everyone they are the one responsible for the effort.

What is the most valuable skill an employee can bring to your department? Efficiency. Because time wasted is money.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Good question! But I've no idea.

What do you foresee to be the "future trends" in your business area? More computer generated images. Perhaps buying & selling via computer/fax.

Employee Questions

Not applicable--no employees at this time. Will begin hiring mid '96.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Self Critique

Submitted By: AnnMarie DeCollibus (teacher partner)
Jeanne McGee (business partner)

School: Ferndale High School/Art Dept.
Business: the Art of PHOTOGRAPHY

Career Pathway Focus: Arts and Communication
Subject Area: Art
Category: Pottery
Suggested Grade Level: 9-12

Skills Being Applied ***(the workplace application)*****:**
Acquiring and evaluating data; interpreting; communicating; critiquing information; understanding technological systems; thinking creatively; making decisions; solving problems and reasoning. Personal qualities-individual responsibility and self esteem.

WA State Student Learning Goal: #3 & #4
Essential Student Learning Element: *ARTS*-

- Student solves problems by creating, perceiving and critiquing.
- Student communicates by interpreting.
- Students understand core concepts and principles of ART by elements, composition and style of presentation.
- The student identifies, understands and interprets various contexts of the arts to make connections between the arts and other disciplines.

Amount of Time Needed to Complete Lesson: One class period at the end of a project; weekly, monthly, etc.

Materials Needed:
- ☐ Art work (any medium) to critique.
- ☐ List of criteria project was to have met.

Lesson Overview:
Outside guest artist (self employed photographer) comes to class with her own work to show to class and self critique. She displays her work and explains how she must self critique her work to provide her clients with the best selection of photographs from which to choose. The photographer must constantly analyze what the client will want so she can sell her art (photography portraits). Students will learn how and why self evaluation is so important to the arts, and why and how it relates to the work world. Guest speaker/artist also explains what she learned in high school that directly relates to the work she does now. Using this background information, students will have a better sense of how and why they need to critique their own art work.

Directions for Lesson/Activity/Project:
Have students display their art work in a room for everyone to see. Set up rules of critique:

- Can only use art-related descriptors ("I like it because it is cool" is not acceptable).
- Each student has to submit at least one response.
- All pieces need to be discussed.

Have students look at their work and compare it to initial criteria given as an assignment project. Ask, "How well did student solve the problem." After hearing from each student in class, have everyone discuss their own work, what they like and disliked. After class has given their input, teacher should offer their critique pertaining to the criteria/assignment (model appropriate techniques). Also discuss how well class solved problem/critiqued artwork and what the teacher learned from the students.

To finalize the critique, ask students what *skills* they used from their other classes to help with their critique session. Suggestions: did they use math, science, writing, research skills, history, etc. Which skills were used? and how were they used? How do they all relate? Why is it important to be able to use all of these skills in the art world?

By engaging students in conversations about their work/art, they are forced to think analytically and form judgments about their work, helping them to see criticism as a positive method of self improvement. This is great for any class level. It helps to reinforce the original lesson plan/criteria for the project, what the student was to learn by doing the project. Using a guest speaker from the " real world of work" helps gives credibility to the idea that as artists you are going to constantly evaluate and critique yourself as part of your everyday routine.

Suggested Assessment:
Have students form small groups and redo critique, using only the language of art and relating all evaluation to a work environment. For example, if this were my own pottery/gallery business, how could I tell if my bowls, cups, etc. are of quality and will sell in the local market. Other students then judge the "work" as consumers. Students enjoy this type of role playing, and can help each other once they understand the critique process.

SPIE – The International Society for Optical Engineering
P.O. Box 10, Bellingham, WA 98227-0010 USA (Mailing Address)
1000 20th Street, Bellingham, WA 98225 USA (Shipping Address)
Telephone: (360)676-3290 Telefax: 360/647-1445

Business Profile:

SPIE is a nonprofit society dedicated to advancing engineering and scientific applications of optical and optoelectronic applied science and engineering. For over forty years SPIE has helped provide applied scientists and engineers with timely information they need in optics, electro-optics, and optoelectronics technology and applications. SPIE disseminates and archives knowledge for the benefit of the international applied science and engineering community.

SPIE is the largest society dedicated to serving the international optical engineering science, and applications community. SPIE acts as a bridge between scientific and engineering communities; academic and industrial communities; and defense and commercial communities.

SPIE's Principle of Actions are: continuous improvement, member/customer oriented, inclusive, ethical, innovative, flexible, responsive, mutuality of benefit, collaborative and fiscally responsible.

SPIE employs about 130 people in full and part-time positions. SPIE offers a wide range of employment possibilities that include: editors, meeting planners, graphic artists, customer service representatives, education and technical program coordinators, administrative assistants, book shippers, technical directors, information systems specialists, and a variety of management positions.

Workplace Applications Informational Interview

Business: SPIE
Address: P.O. Box 10
Bellingham, WA 98227-0010

Contact: Mary Nichols
Phone: (360) 676-3290
Date of Visit: Oct. 30, 1995

****

Management/Human Resources Questions

Primary products/services: Meetings, books, journals, educational short courses for optical engineering.

What kind of person are you looking for? (personal attributes - employability) Flexible with professional knowledge, computer literate, able to meet deadlines, and work with a variety of people.

How do you announce employment opening/recruitment notices? In-house local mail, Washington State Employment Security job bank, newspaper ads.

What kind of pre-screening do you do? (education/experience/other) Choose resumes based on advertised criteria or salesmanship of self.

What type of interviewing do you do? Preliminary phone interview followed by all of the above depending on position.

What are your most common reasons for terminating an employee? Bad job fit.

What are the occupation titles within your workforce? Care taker, data entry, paste-up assistant, facility assistant, graphic art programmer, direct mail assistant, meetings manager, operations manager, production coordinator, AV coordinator, accounting assistant, inventory, on-line manager, editor, customer service representative, membership assistant, promotions editor, accounting manager, computer support coordinator, program coordinator, editorial assistant, shipping coordinator.

What are the skills needed in five years? (workforce of the future) Professional competence in basic skills, computer literacy, work ethic, ability to work with a wide variety of people/situations, ability to learn quickly.

What type of retraining do you do? Expect people to have basic skills; however, we do provide technical training.

What percentage of your workforce has a four year degree? 45%+; two year degree? 40%; high school diploma only? 15%; not high school graduates? 0%

What kind of accommodations do you make for people with disabilities? We attempt to make all reasonable accommodations.

What is the role of employee organizations/unions in your company? None.

First Line Supervisor Questions

Primary products/services: Meetings - organizing for technical community in optics. Meetings and exhibits.

What kind of person are you looking for? (personal attributes - employability) Organized, detailed, experienced, confident, eloquent, able to act/think on feet, computer skilled, able to work under pressure.

What type of retraining do you do? Department trainer (mentor) goes through process step by step. Review computer skills because have very few secretaries.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Word processing, data base, e-mail, Internet; computer literacy.

How would you recommend we teach the work ethic to students? Has to come from within. Individual. has to feel their work is of value. Rewards have to be tangible.

What is the one thing you wish we would teach our students? English language, computer literacy, science, statistics.

What is the most valuable skill an employee can bring to your department? Positive attitude; collaboration - not "me" attitude.

What do you foresee to be the "future trends" in your business area? On-line conferencing, satellite courses for companies, electronic publishing, on-line commuting, computer publishing.

Employee Questions (Secretary - 6 months on the job)

What do you like most about your job? Different from other jobs. Getting involved - see ideas from concept to final phase.

What do you like least about your job? When people go to meetings, it can get slow. Politics - hierarchy.

How did you choose this particular line of work? Liked working with people, phone, customer service. Creativity.

What classes did you take in school that were most helpful? Basic keyboarding but "you got to wanna..."

What classes have been the least helpful? Science, calculus.

What would be a problem situation that you might face in your daily work? How would you handle it? Unhappy customer - find source of information. Late copy - hound source.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Computers, comments from English teachers.

Could you describe 3-5 specific skills that you use regularly on your job?

1. Keyboarding
2. Phone skills
3. Communication
4. Reading
5. Grammar
6. Layout and design

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Laws/Government: Regulations in the Workplace

Submitted By: Mary Seilo (teacher partner)
Mary Nichols (business partner)

School: Ferndale High School
Business: S.P.I.E.

Career Pathway Focus: Arts and Communication
Subject: English/Social Studies

Category: American Studies
Junior English (American. Literature)
U.S. History\U.S. Government

Suggested Grade Level: 11th

Skills Being Applied ***(the workplace application)*****:**
- Information gathering
- Evaluation
- Application

WA State Student Learning Goal: #1 and #4
Essential Student Learning Element(s):
- ♦ Communication #2 (listens and views for understanding)

Amount of Time Needed to Complete Lesson: Two hours

Materials Needed:
- ☐ Handout of questions for students to respond
- ☐ Overhead and transparencies
- ☐ Handout of possible scenarios

Lesson Overview:
State and federal government laws and regulations affect the ability of business and industry to carry out their missions. Students will become aware of what some of these governmental regulations are with a specific look at those areas that impact them as employees.

Directions for Lesson/Activity/Project:
1. Discuss general implications of laws and government regulations on world of work.
2. Hand out list of questions students should be able to answer by end of presentation.
3. Show, visually, (long list) of government regulations (employer could supply you with these).
4. Hand out and discuss employment scenarios (see examples provided).
5. Discuss specific laws using overhead.
6. Examine a new federal law and review steps necessary before company is in compliance.

Suggested Assessment:
Students will demonstrate their understanding of government regulations in the workplace by writing a position paper in which they discuss contemporary issues.

American Studies

1. What is the job description of a human resources manager?

2. Why do governments (federal & state) impose regulations on business and industry?

3. Who benefits and in what specific ways do they benefit from the regulations on business and industry?

4. What repercussions occur to those businesses/industries which do not abide by government regulations?

5. Do government regulations on business and industry fit the Republican or Democratic philosophy? Conservative or liberal? Explain.

6. What conflicts exist between regulations? Which regulations contradict each other? Do federal regulations have precedence over state regulations?

What Would YOU DO?

In the following situations decide if you have violated an employment law and/or increased your potential liability in hiring.

John, who has a learning disability, has applied for a position at your company as a receptionist. You review records from a previous employer indicating that he was labeled as "mentally retarded." John's resume shows that he meets all the requirements for the job, but you decide not to interview him because you don't want to hire a person who has mental retardation. Yes No

You have a job opening for a data entry operator. A person who applies for the position arrives for his interview in a wheelchair. You ask the person to explain or demonstrate how he would perform the essential duties of the job.

You are hiring a person to work in your mail center that must be able to lift 40 pounds several times a day. You run an ad that states you are looking for a mail center trainee who is husky and brawny, a real "he-man." Yes No

You are hiring a person who will be handling large sums of money for your firm. When you interview Sarah you ask her if she has ever been arrested for stealing. Yes No

You are interviewing Chris and you ask Chris if he/she is a man or woman (you can't tell by physical appearance.) Yes No

When you are interviewing Pat for a receptionist position and you notice that he did not work during 1982 and 1983. You ask Pat about the gap in his employment history and he tells you that during that time he was addicted to cocaine. He continues that in late 1983 he went through an inpatient treatment center and has been successfully rehabilitated. Pat is qualified to do the job, but you don't hire him based on a your belief that once addicted - always addicted. Yes No

You are so pleased that you have just interviewed the perfect candidates for the openings of day care attendant, security guard, courier and bookkeeper. Because you are so short staffed and time is of the essence, you do not check references or do background checks. Yes No

Lynden Heritage Foundation
Lynden Pioneer Museum

Business Profile:

The Heritage Foundation is a private, non-profit organization, whose sole function is to support and operate the Lynden Pioneer Museum. The Foundation serves the community by presenting and maintaining the heritage of the community and its people. Their objectives are to establish, secure, preserve, maintain, display, and administer real and/or personal memorabilia of all types in accordance with the Bylaws, Collection Policy, and other procedures established by applicable state and local laws, the City of Lynden Contract, and normal museum practices.

Staffing:

	1995	1996	1997
Employees	3.0	3.5	3.5
Volunteers	100	100	100

Workplace Applications Informational Interview

Business: Lynden Pioneer Museum
Address: 217 W. Front St.
Lynden, WA 98264

Contact: January Pietila
Phone: (360) 354-3675
Date of Visit:

****

Management/Human Resources Questions

Primary products/services: Nonprofit historical museum.

What kind of person are you looking for? (personal attributes - employability) Ethical, self motivated, articulate.

How do you announce employment opening/recruitment notices? We have not done so as yet - most hiring is from word of mouth. We hire from volunteer pool or known experience.

What kind of pre-screening do you do? (education/experience/other)

What type of interviewing do you do? Progressive. Step 1 - curator; Step 2 - director; Step 3 - referral to Board of Trustees.

What are your most common reasons for terminating an employee? They leave the job due to a move or retirement.

What are the occupation titles within your workforce? See attached.

What are the skills needed in five years? (workforce of the future) Computer skills, preservation of artifacts, public relations, grant writing.

What type of retraining do you do? Provide opportunities to employees to learn additional skills.

What percentage of your workforce has a four year degree? 75%+; two year degree? High school diploma only? Not high school graduates?

What is the role of employee organizations/unions in your company? Nonexistent

First Line Supervisor Questions

How would you recommend we teach the work ethic to students? More accountability to deadlines, task management, teamwork.

What is the one thing you wish we would teach our students? Communication skills (proper grammar, public speaking, writing skills).

What is the most valuable skill an employee can bring to your department? Flexibility and ability to work as part of a team.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Living History

Submitted By: Mary Kanikeberg (teacher partner)
January Pietila (business partner)

School: Ferndale High School
Business: Lynden Pioneer Museum

Career Pathway Focus: Arts and Communication
Subject Area: History/English/Business
Suggested Grade Level: 11-12th

Category: Archival Research

Skills Being Applied ***(the workplace application)*****:**
Technical writing and reading skills; critical thinking; problem solving; interpreting data; computer skills; public relations skills; self directedness; interview skills; data collection.

WA State Student Learning Goal: #1
Essential Student Learning Element(s):
- Writing #3 (writes in a variety of forms for a variety of audiences and purposes)

Amount of Time Needed to Complete Lesson: One class session: 2 hours for American Studies; 1 hour each for Journalism and History.

Materials Needed:
- ☐ Sample artifacts or material collected for a museum archival study.

Lesson Overview:
The students learn how to document testimonial information from community members. They learn how to journal their own lives or life events, selection of materials which may belong in future museums; responsibilities of the museum, artifact collection, and why information is saved, and how to interview.

Directions for Lesson/Activity/Project:
Discussion, overhead, samples and explanation of the role of technology in research or historical preservation will be used.

Suggested Assessment:
1. *American Studies students*: write a personal family life story using a proper format for archival materials.
2. *Journalism students:* demonstrate in their writing the need for accuracy.
3. *History students:* journal a personal life story concerning a current event.

Whatcom Museum of History and Art

Business Profile:

For more than 50 years, the Whatcom Museum of History and Art has been a valuable community resource, providing a variety of services in fulfilling its role as museum and cultural center for Bellingham and Northwest Washington. The Museum functions as a community center and place for a variety of public events and performances. The Whatcom Museum is one of only seven museums in the state, and included among just 10 percent of museums nationwide, to be accredited by the American Association of Museums.

The mission of the Whatcom Museum is to provide cultural experiences resulting in personal growth, awareness and enrichment to all segments of the regional population. To collect, preserve, exhibit and interpret objects related to the natural environment, human history and visual arts of our region.

The Museum campus is composed of four buildings: the main Museum(Old City Hall), Syre Education Center, Whatcom Children's Museum and Arco Exhibits Building. The old City Hall is one of the county's landmark buildings and has been listed on the National Register of Historic Places since 1971.

The Museum features both permanent and changing exhibitions. Permanent exhibitions feature birds of the Northwest, the logging industry, Northwest Coast and Alaskan First Nations, and Victorian lifestyles. The Museum also offers several major history exhibitions throughout the year which illustrate and interpret Northwest subjects. The Whatcom Children's Museum features permanent and changing hands-on exhibits, as well as education and enrichment programs for all ages. The Museum's permanent collection consists of photography, naval architecture, ethnography, history and fine arts collections.

The Museum employs a 30-member professional staff, while over 630 active volunteers and 15 groups have provided more than 23,500 hours of work in support of the Museum's efforts.

Workplace Applications Informational Interview

Business: Whatcom Museum
Address: 17 Prospect St.
Bellingham, WA 98225

Contact: Mr. John Olbrantz
Phone: (360) 676-6981
Date of Visit: November 20, 1995

Management/Human Resources Questions

Primary products/services: Whatcom Museum collects, preserves, exhibits, and interprets regional and American History.

What kind of person are you looking for? (personal attributes - employability)

- Outgoing
- Writing skills
- Communication skills

How do you announce employment opening/recruitment notices?
We advertise through "AVISO" monthly news magazine, "Bellingham Herald," and "Seattle Weekly."

What kind of pre-screening do you do? (education/experience/other)

1. Multi-step deadline
2. 3-person panel ranks applications
3. Take the top 10 applications
4. Top 5 are interviewed
5. Interviews are 45 minutes with team of 5

What type of interviewing do you do? Team interviewing

What are your most common reasons for terminating an employee?
The usual reasons, or if position is cut by budget reductions.

What are the occupation titles within your workforce?

- Archivist
- Director
- Secretaries
- Tour guides
- Educator
- Public relations
- Installers
- Curators

What are the skills needed in five years? (workforce of the future)

- Computer
- Public speaking
- Writing

What type of retraining do you do? Computers and basic city employee workshops when applicable.

What percentage of your workforce has a four year degree? 80%; 2 year degree? 10%; High school diploma only? 10%; Not high school graduates? 0%

What kind of accommodations do you make for people with disabilities? City building code requirements are enforced.

What is the role of employee organizations/unions in your company? None

First Line Supervisor Questions

Primary products/services:
- To collect, preserve, exhibit
- Interpret regional history and American art

What kind of person are you looking for? (personal attributes - employability)
Outgoing, with people skills; computer skills are essential.

What type of retraining do you do? (employee basic skills; technical skills)
Some city sponsored workshops; computer mostly

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Computers

How would you recommend we teach the work ethic to students? That's the responsibility of parents.

What is the one thing you wish we would teach our students? More art history.

What is the most valuable skill an employee can bring to your department?
Computer skills, oral and writing skills.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Record keeping was done manually; changes in exhibit installations -- new materials being used for exhibits.

What do you foresee to be the "future trends" in your business area? Museums need to relate more to computers.

Employee Questions **(Deputy Director - 20 years on job/5 years at VECO)**

What do you like most about your job? Making a difference in the community.

What do you like least about your job? N/A

How did you choose this particular line of work? I applied and got the job.

What classes did you take in school that were most helpful? Art history and museology.

What classes have been the least helpful? Science

What would be a problem situation that you might face in your daily work? How would you handle it? Deadlines to set up an exhibit.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? N/A

Could you describe 3-5 specific skills that you use regularly on your job?
- Public speaking
- Writing,
- Flexibility
- Team Building

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Career Opportunities in Museums and Galleries

Submitted By: Rocklyn Johnson (teacher partner)
John Olbrantz (business partner)

School: Mt. Baker High School
Business: Whatcom Museum

Career Pathway Focus: Arts and Communication
Subject Area: Fine Arts
Suggested Grade Level: 9-12

Category: Visual Arts

Skills Being Applied ***(the workplace application):***
- Visual and oral communication
- Computer skills

WA State Student Learning Goal: #2
Essential Student Learning Element(s):
- Arts #5 (identifies, understands, and interprets various contexts of the arts to make connections)

Amount of Time Needed to Complete Lesson: 50 minutes

Materials Needed:
☐ Slides
☐ Projector

Lesson Overview:
To learn about career opportunities in museums and galleries. Guest speaker will be the director of the Whatcom Museum of History and Art.

Directions for Lesson/Activity/Project:
1. Following introductions, students fill out a general survey about their experience with museums. (Interesting to note that only 1% of my students had *ever* visited a museum -- and those few students had transferred here from school districts who took all third graders to the local museum. No students had just gone to a museum on their own.)

2. During the guest speakers presentation, a series of slides are shown that help describe and depict the various aspects of work that take place in a museum...
- how history is preserved and documented;
- how a gallery show is organized and displayed;
- how programs are marketed to the community;
- the tasks that need to be done in any museum;
- the skills required to complete the tasks; skills required of employees.

3. Questions are encouraged throughout the presentation.

(continued)

Suggested Assessment:
Offer extra credit points to students who visit a museum or gallery show and write a minimum of 1/2 page about the experience. Bring back a program brochure. (limit of 30 day offer)

BUSINESS PULSE, INC.

Business Profile:

Business Pulse, Inc. publishes the monthly magazine, Business Pulse and distributes it to 15,000 readers. The magazines clientele are typically people interested in the local business and economic news, as well as the "newsmakers" of Whatcom County. The company also sponsors numerous events throughout the year designed to encourage and support local business and entrepreneurial activities.

Business Pulse employs twelve full and part time people in sales, management, clerical and technical positions. The company values and seeks out employees who are creative, flexible, have strong interpersonal skills, as well as communication skills. ***Business Pulse*** feels that these skills are key components of their company's continued success.

Workplace Applications Informational Interview

Business: Business Pulse
Address: 1846 Iron Street, Suite B
Bellingham, WA 98225

Contact: Tony Larson
Phone: (360) 671-3933
Date of Visit: Oct., 1995

****

Management/Human Resources Questions:

Primary products/services: Business Pulse magazine; sponsor of business events in the community.

What kind of person are you looking for? (personal attributes - employability)

- Creative
- Likable
- Teachable
- Flexible
- Articulate

How do you announce employment opening/recruitment notices?
All positions are advertised in The Bellingham Herald and The Post Intelligencer.

What type of interviewing do you do? We to do one-on-one, team interviews and progressive interviews.

What are the occupation titles within your workforce? Salespeople.

What are the skills needed in five years? (workforce of the future) Same as today.

What type of retraining do you do? We teach new employees about the magazine.

What percentage of your workforce has a four year degree? 50%; 2 year degree? 0%; High School diploma only? 50%; Not high school graduates? 0%

What is the role of employee organizations/unions in your company? None

First Line Supervisor Questions

Primary products/services: Sales

What kind of person are you looking for? Someone who is a team player, who is adaptable and self-directed.

What type of retraining do you do? None

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? None

How would you recommend we teach the work ethic to students? Teach respect and to fulfill promises.

What is one thing you wish we would teach our students? More speaking and argumentation skills.

What is the most valuable skill an employee can bring to your department? Communication skills-oral and written.

Employee Questions **(Production Technician - 6 months on the job)**

What do you like most about your job? The creative aspect of designing ads and page layout.

What do you like least about your job? Disorganization within the organization.

How did you choose this particular line of work? I used skills from college work in computer programming.

What classes did you take in school that were most helpful? Newspaper classes.

What would a problem situation that you might face in your daily work? How would you handle it? Deadlines for production schedule - just keep working on it.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? N/A

Could you describe 3-5 specific skills that you use regularly on your job?
- Computer
- Design skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Marketing Your School

Submitted by: Welles Bretherton (teacher partner)
Tony Larson (business partner)

School: Ferndale High School
Business: Business Pulse

Career Pathway Focus: Arts and Communication
Subject Area: English
Category: Language Arts
Suggested Grade Level: 10-12

Skills Being Applied ***(the workplace application)***
- Allocation of time
- Working on teams
- Leading and negotiating
- Writing, speaking and thinking creatively
- Solving problems
- Adaptability/flexibility

WA State Learning Goal: #1 and #3
Essential Student Learning Element(s):
- ♦ Writing #1 (understands and individualizes the writing process)
- ♦ Writing #2 (produces effective text)
- ♦ Writing #3 (writes in a variety of forms for a variety of audiences)
- ♦ Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)
- ♦ Communication #4 (makes effective presentations using a variety of skills and communication strategies)
- ♦ Communication #6 (evaluates the effectiveness of communication)

Amount of Time Needed to Complete Lesson: 2-3 class periods

Materials Needed:
☐ Handout: "Selling Your School"

Lesson Overview:
Using a fictional scenario in which high schools in Washington are forced to operate on the voucher system, students will work in groups to develop, write and present a sales/marketing plan which will promote their school as a best bet for education in Whatcom County. This lesson, in a more formal and structured manner, applies both the skills and process used at *Business Pulse* to sell advertising space in their magazine and develop and promote various business related "special events."

Directions for Lesson/Activity/Project:

1. Hand out assignment. Discuss scenario and process.
2. Divide class into groups of 3-5 (team building).
3. Do Step one in groups
    - Brainstorm ideas based on step one instructions.
    - Choose areas of campaign focus (3 or 4).
    - Develop specifics for each.
4. Discuss Step 2 of procedure.
5. Groups develop and write plan as detailed in Step 2.
6. Present plan to teacher and class.

** Possible additional components could include designing a poster, creating a video, and/or making an audio tape for a radio advertisement.

Suggested Assessment:

- Evaluate written plan for clarity, organization, content, and creativity.
- Evaluate presentation using standard speech criteria plus group involvement component.
- Self-assessment and group member assessment is an additional option.

SELLING YOUR SCHOOL

SCENARIO:

The State of Washington decides that education at the high school level will be run on the voucher system. This system would allow students and parents to choose any school in Whatcom County based on which school best meets their educational needs. Obviously, districts that have the most to offer and are able to communicate their advantages to district patrons would keep students, and even add students if they wished.

Ferndale School District decides that it must hire a marketing company to promote the high school and its programs. They hire the firm *Marketing, Inc.* And you, as members of teams working for that firm, must create, write and present a marketing plan that will promote Ferndale High School in a way that will keep and attract students to this school.

PROCEDURE:

1. Groups will brainstorm ideas and approaches which could be used in a promotional campaign for the school. Teams should consider: school programs of merit, awards, innovative classes, facilities, available technology, various community resources, administration, and teachers.

2. Develop and write a sales/marketing plan organized in the following manner:
   - Statement of belief about FHS or a promotional "catch phrase" or line that will provide direction for the campaign.
   - Focus of the campaign -- what specific programs, attributes, advantages, will be promoted; what key details will be included, and why did you choose these particular elements.
   - How, specifically, will your promotion be brought to the public? Include the method: TV spots, radio ads, posters, etc., and the specific details you will include.

3. Present your plan to the class. All members of the team should have a role in the presentation.

PRINT AND COPY FACTORY

Business Profile:

Print and Copy Factory is locally owned by Larry and Becky Raney. Established on April 1, 1992, ***Print & Copy Factory*** began production in a small home and garage. Through growth, they have now added 6000 square feet to their facility. For excellence in service and Entrepreneurship ***Print & Copy Factory*** was rewarded with one of five nominations for 1993 Small Business of the Year Bellingham/Whatcom County. ***Print & Copy Factory*** specializes in printing, copies, graphics, finishing services and book binding.

There are ten people employed by the ***Print & Copy Factory***. Becky Raney wants hard working, motivated employees who can think quickly on their feet, and produce quality work under pressure. Employees of ***Print & Copy Factory*** need skills in communication, computers, graphics, reading, writing and teamwork.

Workplace Applications Informational Interview

Business: Print & Copy Factory
Address: 4055 Irongate Road
Bellingham, WA 98226

Contact: Becky Raney
Phone: (360) 738-4931
Date of Visit: Oct. 27, 1995

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Management/Human Resources Questions

Primary products/services: Print and deliver: newsletters, business cards, campaign brochures, books, cookbooks, business books.

What kind of person are you looking for? (personal attributes - employability):

- An energetic person with common sense, who is considered a high achiever.
- They must type at least 60 wpm.
- Business will look at resume and portfolio.
- The person must have goals and know how this job fits into their goals.

How do you announce employment opening/recruitment notices?
Positions are offered through the newspaper and by word of mouth.

What kind of pre-screening do you do? (education/experience/other)

1. High school diploma.
2. College degree if they want to make money.

What type of interviewing do you do? Principally, one-on-one interviewing. Looking for honesty, ability to think on their feet and role playing.

What are your most common reasons for terminating an employee? Calling in sick a lot, doing "C" work. Not showing an attitude of willingness and care towards job and/or co-workers.

What are the occupation titles within your workforce?

Delivery
Supervisor
Color Printer
Customer Consultant
Newsletter
Regular Printer

What are the skills needed in five years? (workforce of the future):

- Computer training
- Graphics via color output

What type of retraining do you do? Businesses have decided that high school is not going to prepare students for the work place. Once hired, they'll train with what's called the "shop system".

What percentage of your workforce has a four year degree? 30%; Two year degree? 10%; High school diploma only? 40%; Not high school graduates? 0%; Military; 20%

What kind of accommodations do you make for people with disabilities? The business would not hire just because of a disability. A disabled person could maybe typeset, but must be capable of meeting production deadlines.

What is the role of employee organizations/unions in your company? We belong to the *Whatcom County Chamber of Commerce* and *Association of Business*. We mainly use business-related organizations to find out what other businesses are doing.

First Line Supervisor Questions

Primary products/services: Same as above.

What kind of person are you looking for? (personal attributes - employability) Same as above.

What type of retraining do you do? (employee basic skills; technical skills) Same as above.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? It is most important for most of my employees to be proficient in type-setting and graphics.

How would you recommend we teach the work ethic to students? Teach it by letting the student know who they are. They need to learn something on their own. They need to understand they don't have all the answers.

What is the one thing you wish we would teach our students? I think that students should start to type on computers in the third grade and by the time they are in sixth grade they should be competent on a computer.

What is the most valuable skill an employee can bring to your department? (why) The most valuable skill an employee can bring to my department is simply to know what's going on around them...awareness.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Cooking.

What do you foresee to be the "future trends" in your business area?
I foresee computers to be a major future trend in my business area.

Employee Questions (Typesetter - 2 years on the job)

What do you like most about your job? I like being trusted to do a good job. If I don't do my job well, no one else can do their job.

What do you like least about your job? I don't like not having updated technology and new programs at work. Then when I get a new program, I have to work out (learn about) the new programs on my own.

How did you choose this particular line of work? I chose this line of work after working for Marriot as a manager until I burned out. I enjoyed playing with the computers in the office, and bought my own PC, and then started doing the church's newsletter. I had a desire to learn all about computers and how they work.

What classes did you take in school that were most helpful? The classes I took in high school that pertain to my line of work were yearbook and journalism. I had a good English teacher (who read Charlotte's Web with all the voices) and I did Running Start.

What classes have been the least helpful? The least helpful classes I took in high school were home economics and French. My teachers had a lot to do with that. They were often burned out by the system.

What would be a problem situation that you might face in your daily work? How would you handle it? A typical problem situation at work would be dealing with lack of communication. In order to solve these problems, I would find the source--the original contact person. Sometimes I have to go back and deal with the customer and say I'm sorry. It may be difficult at times to get to the original source because every job goes through everybody here at work.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? N/A

Could you describe 3-5 specific skills that you use regularly on your job?

- Communication
- Math - problem solving, fractions, add/subtract
- Typing

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Accountability

Submitted By: Jessica Dessert (teacher partner) **School:** Bellingham High School
Becky Raney (business partner) **Business:** Print and Copy Factory

Career Pathway Focus: Arts and Communication
Subject Area: English & Math **Category:** Communication
(would be appropriate for Family and Consumer Science, or Business & Marketing course)
Suggested Grade Level: 9-12

Skills Being Applied ***(the workplace application)***:

- Accountability
- Communication
- Teamwork
- Cost Efficiency (how to make money)
- Problem Solving

WA State Student Learning Goal: #1, 2, 3, 4
Essential Student Learning Element(s):
Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)

Amount of Time Needed to Complete Lesson: Two class periods of 55 minutes each

Materials Needed: Students "job" is to be responsible for bringing all the materials needed for the "work assignment." Teacher will need to assign this job the day before the work assignment is to begin.

☐ 3 1/4 cups of flour
☐ 2 tsp. baking powder
☐ 1/2 tsp. cinnamon
☐ 1/4 tsp. salt
☐ 1/4 tsp. nutmeg
☐ 2 eggs
☐ 2/3 cups sugar
☐ 1 tsp. vanilla
☐ 2/3 cup milk
☐ 1/4 cup butter or margarine
☐ 2 mixing bowls
☐ 1 electric mixer
☐ measuring cups, spoons
☐ Substitute ingredients - pancake mix for flour, garlic salt for salt, shoe box for a bowl, etc. Substitute materials can be numerous things; the teacher needs to be creative.

(I provided the deep fryer with oil and the doughnut cutters)

Lesson Overview:

Prior to the guest speaker coming to class: Put students into work teams: Business A, and Business B. Each student will be responsible for bringing in a material (see list above) to make this "job" assignment work. Students will also need to determine the cost of each item they have been assigned to bring to class.

During the work assignment, the "bosses" will be observing for the following skills:

- Accountability
- Communication
- Cost Efficiency
- Teamwork

Directions for Lessons/Activity/Project:

Part One: At the beginning of the period, our guest speaker, Becky Raney (*Print and Copy Factory)* provides an overview about her copy business. She explains the requirements of her job and the expectations she has for her employees. Students are given an opportunity to ask questions and Ms. Raney provides answers.

Part Two: Divide the class into Business A and Business B work teams. Each business team has to perform the following tasks:

- Figure the cost of all materials.
- Follow the recipe for making doughnuts.
- If your *business* does not have the necessary ingredient(s), then use a substitute (i.e. pancake mix for flour).
- Cook doughnuts.
- Figure the cost of each doughnut.
- Pick a name for your doughnut and doughnut shop.
- How many doughnuts did your group make?
- How much will you charge for each doughnut?
- How much profit will you make off of each doughnut?
- Who worked? Who would you fire?

Goals: accountability, cost efficiency, communication, team work.

Suggested Assessment:

Students open their business and present their product. They talk about money earned and money spent. Interesting to see who are the drivers/leaders, and who doesn't pull their weight. Let the students talk about what they felt they learned from the assignment. Talk about how important accountability, team work and communication is for being a successful student, employee, co-worker, etc. To extend the lesson, could also consider time constraints, production deadlines, absenteeism, which can all effect the "end product."

Mount Baker Theater

Business Profile:

The Mount Baker Theater has a long history of serving the community in the visual/performing arts. The theater opened for business in 1927. In 1983 the theater became a corporation, and Barry Bonifas its director. The staff that Mr. Bonifas works with is and has to be very versatile. They manage ticket sales, schedule incoming performances, and oversee the general housekeeping and maintenance of the theater facility.

The theater schedules many different types of performances. They range from a Disney projected movie (on one of the largest screens in the county) to the Steve Miller Band performing live on stage. This can mean very busy times at the theater. Quite often there are performances seven days a week.

The inside of the theater has gone through some major "reconstructive surgery" and it has emerged looking very much as it did when it was originally constructed. Many months of painstaking work by professional artists and craftspeople has brought renewed life back to the theater. Years of research and planning assured reconstruction and reproduction that closely followed the historical lines of the building. The floor coverings, and upholstery fabrics were reproduced to replace the originals. The walls and ornate ceiling have all been refurbished with new paint or decorative plaster. A special cleaning process peeled away many years of grime revealing beautiful wall murals and ceiling decorations.

There are only a handful of people that keep the theater running year round. Career opportunities include: business management, ticket manager, house manager, accountant, development director, and sales and promotion. Barry sights experience, hard work, and a staff that can handle multiple jobs as a successful combination for employment in this business. Being adaptable and having job descriptions that are flexible is what it takes to keep a theater like this in operation. The old saying, "the show must go on" rings true on this Mount Baker Theater stage.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Let's Talk About Art

Submitted By: Scott Sahagian (teacher partner)
Barry Bonifas (business partner)

School: Lynden High School
Business: Mount Baker Theater

Career Pathway Focus: Arts and Communication
Subject Area: Fine Arts
Category: Fine Arts
Suggested Grade Level: Junior High/High School

Skills Being Applied ***(the workplace application):***
Taking knowledge from the business side of art and bringing it to the classroom.

WA State Student Learning Goal: #2, 4
Essential Student Learning Element(s): *The Arts*

- Art #5 (identifies, understands, and interprets various contexts of the arts to make connections)

Amount of Time Needed to Complete Lesson: 30-40 minutes

Materials Needed: None

Lesson Overview:
The focus of the lesson is a guest speaker (Barry Bonifas) representing the professional side of fine and performing arts. Students will have an opportunity to meet and talk with an experienced person in the Arts and Administration field. They will learn about the "business" of selling their art. They will also learn that "art" comes in a variety of forms and that artists have many valuable skills that can be used to help further their career aspirations.

Directions for Lesson/Activity/Project:
This is simply a lecture type lesson with some question and answer time after the speaker is finished. Questions to be considered:

- What is the largest field in the Arts?
- What is the field with the most job opportunities at this time?
- What is the average amount of schooling needed for any of these careers?
- What kind of skills are most beneficial to have when seeking employment in an "arts"-related business?
- If a person wants to make a career out of their artistic talents, what should they be prepared to do? There are many talented artists in the world, what does it take to compete? to sell? to be recognized? How do you get your foot in the door? Where is the best place to start?
- Is there a place in the "art world" for a person who loves the arts but is not artistically talented?

KGMI/KISM RADIO

Business Profile:

KGMI/KISM Radio is a local, privately owned radio station that is one of the most successful of its kind in all of the United States or Canada.

The station employs thirty-four people and is definitely a personality driven operation with decisions being made by those working at the station rather than by a large conglomerate located far from the local area. Career opportunities include management positions, radio announcing, copywriting, technical engineering, program development, sales, traffic director, accounting, programming and production.

Broadcasting is only one part of this business operation. Sales, advertising, and sales organization are also key components of this station which is able to compete at a national level. The key to their success is a commitment to excellence and providing community service with a personal touch. These qualities are what makes KGMI/KISM Radio a success in today's communication network world.

Workplace Applications Informational Interview

Business: KGMI/KISM Radio
Address: 2219 Yew St. Road
Bellingham, WA 98226

Contact: Bill Quehrn / Dan King
Phone: (360) 734 9790
Date of Visit: November 3, 1995

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Management/Human Resources Questions

Primary products/services : AM/FM radio, sales organization

What kind of person are you looking for? (personal attributes - employability)
- Eager
- Interested
- Adaptable
- Sales background experience

How do you announce employment opening/recruitment notices? Firstly, the vast network in the industry with referral to application file. Secondly, recognized organizational publications, also trade publications. Lastly, newspaper want ads.

What kind of pre-screening do you do? (education/experience/other)
1. Manager and one other employer conduct an interview.
2. Tape audition and resume are also used.

What type of interviewing do you do? Primarily a progressive three process interview. The process depends on the job.

What are your most common reasons for terminating an employee?
Performance issues: poor performance, not reaching goals, announcing skills not up to required standards

What are the occupation titles within your workforce?

Managers
Performers
Sales
Accounting

Programmers
Engineers
Copywriting

What are the skills needed in five years? (workforce of the future)
- Keeping pace with technology.
- Generating sales to meet market needs.

What type of retraining do you do? Employees are continuously involved in retraining, to meet the needs of their jobs.

What percentage of your workforce has a four year degree? most; 2 year degree? some; High school diploma only? few; Not high school graduates? none

What kind of accommodations do you make for people with disabilities? Construction of new facility which is now single story and meets federal requirements.

What is the role of employee organizations/unions in your company? Various trade groups offer special training but there are no unions at this facility.

Employee Questions (Business Manager/Bookkeeper - Two years on the job)

What do you like most about your job? It's a small successful business that is personality driven.

What do you like least about your job? The pressure; getting bored; having to motivate others to complete their task.

How did you choose this particular line of work? I first became involved with sales and then moved to business management. The longer I was in the field I saw that good accounting led to the success of the business.

What classes did you take in school that were most helpful?
English, Math and Life Survival Skills

What classes have been the least helpful?
Latin, because it wasn't suitable for the job but I found it very suitable for communications.

What would be a problem situation that you might face in your daily work? How would you handle it? Motivating others to complete assigned tasks and meet deadlines. If a person can't meet deadlines they are given warnings, and if need be terminated.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Math

Could you describe 3-5 specific skills that you use regularly on your job?

- Math
- Language skills
- Social studies

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Primary Resource and Communications

Submitted By: Dave Hageman (teacher partner)
Bill Quehrn (business partner)

School: Sehome High School
Business: KGMI/KISM Radio

Career Pathway Focus: Arts & Communications
Subject Area: History
Suggested Grade Level: 9-12

Category: Social Studies

Skills Being Applied ***(the workplace application)*****:**
- Writing
- Public speaking
- Math
- Electronics
- Business and accounting

WA State Student Learning Goal: #1, 3, and 4

Essential Student Learning Element(s):
- ♦ Communication #4 (makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: 45-60 minutes (separated into two visits)

Materials Needed:
- ☐ Completed primary research project with position paper
- ☐ Handout, "Essential Learnings: Communication" (Commission on Student Learning)

Lesson Overview:
The students will arrange a visit to the classroom with a radio/TV personality to discuss the necessary skills of a broadcaster's job. Using the research project handout as an outline, the students will simulate a radio program using their position paper as an editorial.

Directions for Lesson/Activity/Project:
- Prior to application lesson, the students are given instructions for a primary research project.
- Arrange for two visits to the classroom with radio/TV personality.
- Visit #1: Radio/TV personality discusses with the class the knowledge, skills and abilities/talents necessary to be successful at their career.
- Visit #2: Using "Essential Learnings: Communication" handout as a guide, the students will simulate a radio program using their primary research position paper as a base for an editorial.

Suggested Assessment:

Upon completion of position papers, radio/TV personality is invited back to class to observe the students in simulation. The simulation provides an atmosphere for the student to present their position paper as an editorial or a panel discussion in a five minute news segment. The guest, teacher and students will critique, question and comment on the presentation.

Primary Resource Research Project

Directions: You will have most of the term to develop a research project using primary resource materials. Little time will be given during class for the completion of this project. The various options available for this project include:

Option One

1. Select a topic or theme for research for which you can find magazine, newspaper or electronic news service articles. Ideas might include: immigration, population growth, gun control, international incidents, specific wars, peace efforts, happy things in the news.

2. Collect over the period of the term a minimum of twenty articles that relate to your research. At least one of your articles must be from a magazine.

3. Each article must include a brief summary. Make sure you include the date of the article.

4. Arrange your articles chronologically if your research follows a series of events (such as the invasion of Haiti). Place your items neatly in some sort of notebook for presentation.

5. Complete your presentation with a two page minimum *position paper* that includes:
    - A statement of your theme.
    - Information from your articles supporting your position.
    - A minimum of three foot notes referencing your research.
    - Conclusion stating your analysis or how you would resolve the situation.

Option Two

Following the same format as mentioned above, select as your topic of research a collection of articles that relate to any one or more of the countries of study for this class.

Option Three

1. Make a collection of quotations with a current events and/or historical theme.

2. A minimum of sixty quotes will be required.

3. Arrange your quotes in a topical fashion and present in a quote book format with illustrations from magazines, or better yet, your own making. Be sure and include the author of each quote. *See me for details.*

Option Four

A presentation utilizing all categories of the multiple intelligence's. *See me for details.*

BUSINESS & MARKETING

TECH PREP

CAREER PATHWAYS

Haggen/TOP Food & Drug

Business Profile:

Top Foods Haggen is a private company owned equally by Donald E. and Richard R. Haggen. The company operates sixteen supermarkets throughout the state of Washington and currently employs 2,600 people. In 1994 their sales were $350 million and are projected to reach $450 million in 1995. In addition to the four upscale Haggen stores located in Bellingham and Stanwood, there are twelve TOP (Tough On Prices) Food & Drug combination stores, one each in Snohomish, Everett, Olympia, Wenatchee, Yakima, Kelso, Federal Way, Tacoma, Edmonds, Puyallup, Lacey, and Kent. The "Washington CEO" magazine and the "Puget Sound Business Journal" rank Haggen, Inc. as the 10th largest privately owned company in the state of Washington, based on fiscal year 1994. In addition, Haggen, Inc. is ranked 3rd largest locally based grocery store in Washington state by the Puget Sound Business Journal.

Haggen TOP Food & Drug stores feature some if not all of the following: scratch in store bakeries, service delicatessens, seafood and service meat counters, impressive product departments, floral and garden shops, video stores, gourmet coffee bars, pharmacies, food courts and in store dining areas, gourmet pizza departments, custom sandwich bars, hot grills, Orient Express Chinese cuisine and elaborate bulk foods departments. All this while offering a 24 hour shopping experience.

The company was built by and is successful because of friendly, professional, customer-oriented individuals offering quality service and products. The high volume success of the company has allowed them to attract aggressive, competent management to staff the new and existing stores.

Career opportunities with *Haggen TOP Food and Drug* range from entry-level, part-time to professional retail management to corporate office administrative positions. In order to stay on the leading edge of progress in the supermarket industry the company is looking for individuals that are service and business oriented with skills in business math and administration, leadership, communication, teamwork and retail sector operations.

Workplace Applications Informational Interview

Business: Haggen/TOP Food & Drug
Address: 210 36th Street
Bellingham, WA 98225

Contact: Cheryl Addicott
Phone: (360) 676-1996
Date of Visit: Oct. 24, 1995

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Management/Human Resources Questions

Primary products/services: Full service supermarket chain offering scratch bakeries, delicatessens, Chinese cuisine, produce, meat, seafood, video and pharmacy.

What kind of person are you looking for? (personal attributes - employability)
Outgoing, friendly, product-minded, evolutive, goal-oriented, energetic and professional.

How do you announce employment opening/recruitment notices?
Newspapers, in-store signs, internal job postings, school career fairs. We have a systematic interviewing process that is held every Monday at 3:00 p.m.

What kind of pre-screening do you do? (education/experience/other) It depends upon the skills, knowledge and abilities needed to perform the essential functions of the job.

What type of interviewing do you do? It depends upon the level of the available position. All screening starts with the application. It must be neat and accurate.

What are your most common reasons for terminating an employee? Attendance and tardy violations, which are common in a retail setting.

What are the occupation titles within your workforce? Various retail positions including: sales clerks, cooks, managers, food service, checkers and customer service personnel.

What are the skills needed in five years? (workforce of the future) Diversity training, public speaking "business" math, English, computer literacy.

What type of retraining do you do? A high performing employee mentors another employee. Educational Assistance Program, to help fund the cost of outside courses and classes related to the job. Various workshops.

What kind of accommodations do you make for people with disabilities? It depends upon the individual, the disability and the position.

What is the role of employee organizations/unions in your company? All of our stores are closed union shops with the exceptions of management, bookkeeping and custodians.

First Line Supervisor Questions

Primary products/services: Service deli, food court, sandwich bar.

What kind of person are you looking for? (personal attributes - employability)
Food handler card, ability to merchandise, use color and display.

What type of retraining do you do? (employee basic skills; technical skills)
Time management, perishable management, delegating and organizing.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Hobart scales, phone system, slicer, bailer, oven, dishwasher, blast chiller.

How would you recommend we teach the work ethic to students?
Clarify expectations, use tracking benchmarks, incentives, lead by example.

What is the one thing you wish we would teach our students? Accountability and ability to accept constructive criticism.

What is the most valuable skill an employee can bring to your department? Customer relations skills.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Need to teach food measurements by pounds/weight as well as by volume.

What do you foresee to be the "future trends" in your business area? Health consciousness, analysis of fat/salt/sugar in product, hot sandwiches, slice to order meats.

Employee Questions **(Food Service Manager -- 3 years on the job)**

What do you like most about your job? Interaction with people, creativity, variety, responsibility, seeing increasing sales.

What do you like least about your job? Work hours, effect on personal life.

How did you choose this particular line of work? It was a "college job" that grew in opportunity.

What classes did you take in school that were most helpful? Human resource training program, psychology, public speaking.

What classes have been the least helpful? All have been helpful.

What would be a problem situation that you might face in your daily work? How would you handle it?
(1) perishable load left out - need to discipline employee.
(2) sick worker calls in - need to help with food production.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Take more communication and human resource classes.

Could you describe 3-5 specific skills that you use regularly on your job? (communication, math, science, technical or SCAN skills) Resource management, interpersonal skills, analysis, systems and prioritizing, thinking skills.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Food at Work

Submitted By: Etta Kirk (teacher partner)
Cheryl Addicott (business partner)

School: Bellingham High School
Business: TOP Foods/Haggen

Career Pathway Focus: Business & Marketing
Subject Area: Family & Consumer Sciences
Suggested Grade Level: 9-12

Category: Foods/Nutrition

Skills Being Applied ***(the workplace application)*****:**
- public relations skills
- product control

WA State Student Learning Goal: #4
Essential Student Learning Element:

Amount of Time Needed to Complete Lesson: 3 one-hour classes

Materials Needed:
- ☐ filmstrip/video: "Decorating Food" or equivalent
- ☐ lab materials: fresh fruits and vegetables & employee guide to production
- ☐ slide program: developed from local market
- ☐ employee handbook/rules from local market (These will vary by locale. Teachers need to contact their local market for specifics).

Lesson Overview:
Public relations skills are important to boost product sales. Product control is a health issue related to food handling. This lesson provides hands-on practice with both public relations skills and product control necessary in a food service section of a grocery store.

Directions for Lesson/Activity/Project:
Day One:
- View video on food presentation/decoration.
- Study related vocabulary, equipment & market rules for employees.

Day Two:
- Lab to pre-prep fruits and vegetables for deli trays.
- Use local market deli instruction sheets and methods.

Day Three:
With guest from market, show slides of a "normal day at work" that includes: punching in at time clock, dressing in uniform, food prep & display, sanitation & greeting the customer.
- Guest evaluates student deli tray prep.

Note: Market deli instruction sheets are protected from competitors and not available for publication. For this lesson I was able to use a sample and pictures only if I would agree not to duplicate them. In order for this lesson to be effective a teacher would need to make their own "community connection" to make it relevant to a business in their area.

Suggested Assessment:

1. Quiz on vocabulary, equipment & market rules.
2. Lab evaluation using market worker evaluation standards.
3. Guest verbally evaluates student product production.

Workplace Applications Informational Interview

Business: Haggen, Inc.
Address: 2211 Rimland Drive
Bellingham, WA 98226

Contact: Susan Everett
Phone: (360) 650-8239
Date of Visit: Nov. 21, 1995

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Management/Human Resources Questions

Primary products/services: Full service supermarket offering: Pharmacy, Food Court, Orient Express, Scratch bakery, Seafood/Meat, Produce, Video, Floral, Garden, and Coffee Shop

What kind of person are you looking for? (personal attributes - employability)
- Friendly
- Outgoing
- Responsible
- Professional, goal-oriented
- Energetic
- Product minded
- Evolutive

How do you announce employment opening/recruitment notices? In-store "Career Advancement Bulletin Board" - posting, announcements; New hires - sign in store, newspaper advertising, advertising in schools, job fairs; we have a systematic interviewing process held Mondays at 3 PM at our stores

What kind of pre-screening do you do?(education/experience/other): Depends on position the applicant is applying for.
- Application must be completed neatly and thoroughly
- Math assessment is administered to all candidates

What type of interviewing do you do? We do one-on-one, two-on-one, and small group; it depends on the level of the position.

What are your most common reasons for terminating an employee?
- Non management issues - attendance and tardy violations, which is common in a retail setting.
- Management issues - lack of results, not up to company standards.

What are the occupation titles within your workforce? Various retail positions including sales, clerks, cooks, food service, checkers, customer service personnel; supervisory positions include persons in charge, leads, assistants, department managers, and store managers.

What are the skills needed in five years? (workforce of the future):
- Diversity training, teamwork
- Public relations
- Business math and computer literacy
- English
- Survival skills

What type of retraining do you do?

- Educational Assistance Program - Cornell University, Dale Carnegie
- Seminars, conferences, workshops
- Hands-on training with a mentor

What kind of accommodations do you make for people with disabilities? Depends on individual, the disability, and the position; we recently held two Sign Language Classes.

What is the role of employee organizations/unions in your company? All of our stores are closed union shops with the exceptions of management, bookkeeping and custodians; contract negotiations and grievance issues.

First Line Supervisor Questions:

Primary products/services: See above.

What kind of person are you looking for? (personal attributes-employability) Someone who is friendly, energetic, goal oriented, concern for others, professional, responsible.

What type of retraining do you do? Conducted by manager or experienced employee; retraining on specific skill or area in need of improvement; seminars, workshops, classes.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? It depends on the position; office - computer keyboard, phones, time clock; store - phones/intercom, time clock.

How would you recommend we teach the work ethic to students?
Holding them responsible and accountable for their actions in the classroom.

- Attendance, tardiness, punctuality, completion and thoroughness of assignment and turned in on time.
- Portraying good listening skills and respect for others through in-class exercises.

What is the one thing you wish we would teach our students? Responsibility/accountability.

What is the most valuable skill an employee can bring to your department? (why): Basic skills such as teamwork and communication - they need to understand the importance of communicating with others, working as a team to accomplish common goals.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? N/A

What do you foresee to be the "future trends" in your business area? Customer service and human relations skills - must have these to succeed in the increasing service industries.

Employee Questions (Database Administrator - 1 year on the job)

What do you like most about your job? Constant change and challenge; the variety of work; the people with whom I work.

What do you like least about your job? Managerial style and budget constraints.

How did you choose this particular line of work? Entry level employee and worked up into present position.

What classes did you take in school that were most helpful? Small Group/ Interpersonal Communications, English, Geography.

What classes have been the least helpful? Vocational Art, Social Sciences, units in English Literature.

What would be a problem situation that you might face in your daily work? How would you handle it? Computer problems - hands-on attention; some individuals not completing their tasks which affects others - mediation needed.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Nothing

Could you describe 3-5 specific skills that you use regularly on your job?
- Typing
- Telecommunications
- Problem solving and researching
- Meeting skills
- Business math and computers
- Public speaking

Workplace Applications Lesson Plan

Lesson Title: Applying, Researching, and Interviewing for a Job

Submitted By: Patrick Shannon (teacher partner) **School:** Nooksack Valley High School
Susan Everett (business partner) **Business:** Haggen, Inc.

Career Pathway Focus: Business and Marketing
Subject Area: English **Category:** Career Exploration
Suggested Grade Level: 9th

Skills Being Applied ***(the workplace application)*****:**
- Writing
- Speaking
- Researching
- Analyzing
- Synthesizing
- Interpersonal skills

WA. State Student Learning Goals: #1, 3 and 4
Essential Student Learning Element(s):
- Writing #3 (writes in a variety of forms for a variety of audiences and purposes)
- Communication #4 (makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: Three class periods (four hours)

Materials needed:
- ☐ Haggen's Informational Brochures and Video
- ☐ Applications
- ☐ Writing utensil

Lesson Overview:
Employees working in "service-oriented" businesses need to possess strong communication skills, and interpersonal skills. Employees must be flexible and adaptable, willing to help the customer in a variety of ways...the customer is always right attitude. During the hiring process, Haggen is looking for potential employees who possess these skills, and the application, resume and interview are the tools they use to select the "best" candidate for the job. This lesson helps reinforce the need for advance preparation/readiness for the job search process.

Directions for Lesson/Activity/Project:
Susan Everett, Employment Coordinator for Haggen will show students an introductory video addressing Haggen, its origin, mission statement, goals, objectives, number of stores and departments, and employment opportunities. They will then be asked to read informational brochures as a reinforcement to the video. A short discussion will ensue and students will take notes about what they viewed and read.

Day Two:
Students will take a short quiz that reviews information from yesterday's presentation. From the research materials presented yesterday the students will work in small groups to brainstorm five possible interview questions. These questions will be discussed in class and handed in for assessment. They will then fill out a Haggen's application, write a paragraph as to why they should be selected for the job, and prepare themselves for an interview.

Day Three:
During the final session, two volunteers will be asked to go through a mock interview - one prior to Susan's presentation and one following. The class will then comparatively debrief the interview with Susan and discuss possible interview strategies and observations. Students will be asked to identify the observed strengths and weaknesses of the interview process. The guest speaker will share tips on how to prepare for a quality interview experience. Applications will be handed in for evaluation, and students will be assigned a journal exercise addressing what they learned during the three day lesson.

Question-and-Answer Session - Susan and Mr. Shannon will answer questions and share their experiences at each other's job sites.

Suggested Assessment:
First, students will be objectively quizzed over the Haggen's video and brochure. Second, their applications and paragraph will be evaluated on neatness, legibility, and the conventions of writing. Finally, journals will be assessed on content and ideas, voice, and sentence fluency.

Metcalf, Hodges & Co., PLLC

Certified Public Accountants

Business Profile:

Metcalf, Hodges & Co., CPAs, PLLC is a Northwest Washington firm of Certified Public Accountants with a long-standing reputation for the highest standards for quality and competence. The firm is in its 31st year of continual service to Whatcom and Skagit Counties. We are a full service professional firm providing auditing, accounting, tax, business management and information technology services. We have a long-term commitment to our clients and emphasize timely delivery of services to allow our clients to make informed business decisions.

Our firm currently has a staff of thirteen CPAs, four of whom are principals, plus nine paraprofessionals and clerical staff. We are committed to providing high quality work. The firm participates in the Private Practice Division of the American Institute of Certified Public Accountants. Participation in this division is a voluntary, quality assurance program requiring the firm to maintain the highest standards. Compliance with these standards is monitored by a peer review from an outside, independent CPA firm.

Our commitment to quality is evident in that the continuing professional education of firm members far exceeds the minimum requirements of the profession. Many of the principals and professional staff also serve on the technical and advisory committees of accounting and other professional organizations.

Our audit team has extensive experience and expertise in auditing many not-for-profit organizations. Our work has covered not only financial statement audits, but compliance with government regulations, and developing internal control systems.

Workplace Applications Informational Interview

Business: Metcalf, Hodges & Co. CPAs
Address: 101 Prospect Street
Bellingham, WA 98225

Contact: Dennis Archer
Phone: (360) 733-1010
Date of Visit: Nov. 13, 1995

* * *

Management/Human Resources Questions

Primary products/services: Accounting firm (Mr. Archer is responsible for the tax services division of Metcalf, Hodges & Co.).

What kind of person are you looking for? (personal attributes - employability)

- One who is organized, efficient, and not afraid to ask questions.
- Employees who are dedicated, intelligent, and have the drive to work really hard.

How do you announce employment opening/recruitment notices?
Positions are offered through newspaper advertisements and Western Washington University recruitment days.

What kind of pre-screening do you do? (education/experience/other)

1. We examine resume and grade point average must be at least a 3.0.
2. Based on that information we conduct a screening interview.

What type of interviewing do you do? A candidate will be interviewed a minimum of two times with the partners, followed by an interview with the staff.

What are your most common reasons for terminating an employee?
Lack of productivity or under-performance.

What are the occupation titles within your workforce?

- Partner (principal)
- Manager
- Supervisor
- Staff

What are the skills needed in five years? (workforce of the future)
Organizational skills.

What type of retraining do you do? None.

What percentage of your workforce has a four year degree? 80%; 2 year degree? 0%; High school diploma only? 20%; Not high school graduates? 0%.

What kind of accommodations do you make for people with disabilities?
Building has sufficient access and bathrooms.

What is the role of employee organizations/unions in your company? None

First Line Supervisor Questions

Primary products/services:

- Manage tax accounts for partner--1/2 of them.
- In charge of income taxes, estate taxes, and business tax returns.

What kind of person are you looking for? (personal attributes - employability)
Someone knowledgeable, and able to learn taxes that are constantly changing; someone who is willing to continually learn. A person who works well with other people.

What type of retraining do you do? (employee basic skills; technical skills)
Basic tax course for new employees, direct supervision when employees first come on board.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using?
Computers--need spreadsheet skills and word processor skills.

How would you recommend we teach the work ethic to students?
We need to teach students to be disciplined, responsible and on time in their daily work.

What is the one thing you wish we would teach our students?
Real world problems--not everything comes in neat summaries--you'll need to hunt through data to get information.

What is the most valuable skill an employee can bring to your department? (why)
Ability to learn, work hard and a desire to stay up on changes. Work ethic is important.

What processes have become obsolete in the last couple of years? What do we no longer need to teach?
Manual accounting--things are computerized now.

What do you foresee to be the "future trends" in your business area?
To be successful, employees will need people skills and communication skills. We will need the ability to continually learn. The technical requirements will increase (computer) and we will need the ability to deal with problems.

Employee Questions	Job Title	How long on the job?

Did not have employee interview.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Employment Requirements and Expectations in Public Accounting

Submitted By: Bob VanderHaak (teacher partner)
Dennis Archer (business partner)

School: Lynden Christian High School
Business: Metcalf, Hodges & Co. CPAs

Career Pathway Focus: Business and Marketing
Subject Area: Accounting/Business
Suggested Grade Level: 12th

Category: Public Accounting

Skills Being Applied ***(the workplace application)*****:**
- Problem solving
- Analysis
- Interpreting data
- Synthesizing

WA State Student Learning Goal: #3 & #4
Essential Student Learning Element(s):
- Communication #2 (listens and views for understanding)

Amount of Time Needed to Complete Lesson: one class period (approx. 45 minutes)

Materials Needed:
- ☐ Overhead projector
- ☐ Transparencies

Lesson Overview:
Mr. Archer will be the guest speaker. He will provide students with an overview about the business of accounting and the job requirements of an accountant. He will tell students about the skills, qualities and attributes the company looks for when hiring a new employee.

Part of an accountant's job is to assess a businesses vital signs. Mr. Archer will explain how he does this...the indicators that determine a company's strengths or weaknesses.

Directions for Lesson/Activity/Project:
Following the guest speakers presentation, the students will work on the following problem...
1. An analysis of financial data.
2. Draw conclusions from the data -- to determine what it communicates to the owner and users of the financial statements.
3. Propose areas for improvement of financial performance.
4. Derive an understanding of a public accountant's performance requirements in a public accounting firm.

Suggested Assessment:
Students will be required to demonstrate their analysis skills when reviewing financial statements during future class assignments.

C.B. WHOLESALE, INC.

Business Profile

C.B. Wholesale, Inc. is a family owned construction and building materials supplier with offices in Bellingham and Burlington, Washington. Originally located in Burlington, the present owners purchased the business in 1988 and expanded operations to Bellingham in 1991. Their primary products are drywall, roofing and siding for the contractor market in Whatcom, Skagit, Island, and San Juan Counties.

Owner, Brent Walker leads two teams of employees, one at each location, including the warehouse manager, inventory specialists, sales representatives, warehouse-workers and delivery people. As is true in many industries, competition is keen so the need to continually improve is paramount to the mission of C.B. Wholesale. Mr. Walker is dedicated to improving the welfare of the company's team members and increasing their involvement and decision making in the operation of the company. He believes that employees with an attitude of ownership and excellent customer service will continue to make C.B. Wholesale competitive and profitable.

Workplace Applications Informal Interview

Business: C.B. Wholesale
Address: 1991 Division Street
Bellingham, WA 98225
(816 S. Spruce - Burlington, WA)

Contact: Brent Walker
Phone: (360) 733-2298
Date of Visit: Nov. 16, 1995

* * *

Management/Human Resource Questions

Primary products/services: Construction and building materials.

What kind of person are you looking for? (personal attributes - employability)

- Excellent people skills
- Strong work ethic
- Eagerness to learn and improve

How do you announce employment opening/recruitment notices?
Positions are offered informally through word of mouth and through industry associates and current team members.

What kind of pre-screening do you do? (education/experience/other)

- Education
- Experience
- Referrals
- References

What type of interviewing do you do? Primarily a series of individual and team interviews.

What are your most common reasons for terminating an employee?
Lack of initiative, responsibility or teamwork; unwillingness to learn and improve.

What are the occupation titles within your workforce?

Inventory Manager
Warehouse/Deliverymen
Mis-Manager
Salesperson
Credit Manager

What are the skills needed in five years? (workforce of the future)

- Basic math (simple algebra)
- Effective communication (writing, reading, speaking, listening)
- Solution generation (thinking, analysis, problem solving)
- Basic psychology (human relationships)

What type of retraining do you do? We offer a variety of continued training options (as opposed to retraining).

What percentage of your workforce has a four year degree? plus 20%; 2 year degree? 10%; High school diploma only? 60%; Not high school diploma? 10%.

What kind of accommodations do you make for people with disabilities?
We are limited in the types of accommodations we can make due to the physical requirements of the work imposed on nearly all team members.

What is the role of employee organizations/unions in your company? None

First Line Supervisor Questions

Primary products/services:
- Roofing
- Siding
- Drywall

What kind of person are you looking for? Same requirements as above plus leadership skills.

What type of retraining do you do? Continuous coaching by team leaders.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Computers, Fork Trucks

How would you recommend we teach the work ethic to students?
Set high standards of performance and hold individuals accountable for their performance.

What is the one thing you wish we would teach our students? Effective communication skills (reading, writing, speaking and listening).

What is the most valuable skill an employee can bring to your department? Positive "can-do" attitude - makes nearly anything possible.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Memorization of facts/dates.

What do you foresee to be the "future trends" in your business area? A Continuously stiff level of competition which will require innovation and continuous improvement by business.

Employee Questions (Warehouse Manager - 2 years on the job)

What do you like most about your job? Positive, supportive, atmosphere; lack of fear tactics.

What do you like least about your job? Team members that don't support the team effort.

What would be a problem situation that you might face in your daily work? How would you handle it? Angry/dissatisfied customer: listen to and try to understand problem from customers viewpoint; solve problem, thank customer for telling me.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Math and writing.

Could you describe 3-5 specific skills that you use regularly on your job?
- Math
- Verbal Communications
- Computer Skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Financial Indicators (ratios)

Submitted by: Fred Goodman (teacher partner)
Brent Walker (business partner)

School: Sehome High School
Business: C.B. Wholesale, Inc.

Career Pathway Focus: Business and Marketing
Subject Area: Business
Suggested Grade Level: Grade 11-12

Category: Economics

Skills Being Applied ***(the workplace application):***
- Interpreting data

WA State Student Learning Goal: #3
Essential Student Learning Element(s):
- Mathematics #4 (communicates knowledge and understanding in mathematical and everyday language/interprets information)

Time Needed to Complete Lesson: 60 to 90 minutes

Materials Needed:
- ☐ Handout/Overhead Masters (attached)
  - ABC/XYZ Co. Comparative Financial Statements
  - Ratio Definitions and Formulas
  - Comparative Financial Ratios Worksheet
- ☐ Supplementary Company Data(Georgia Pacific) used to supplement and extend basic lesson (statement of income, balance sheet and financial ratio calculations).
- ☐ Individual Stock Assignment to which financial ratio lesson will be applied (Item II in report format)
- ☐ Calculator

Lesson Overview: To introduce the concept of financial indicators(ratios) as used in the workplace to analyze the financial "well being" of a business. Businesses base their planning and operating decisions on the financial indicators. Students will subsequently calculate ratios for a company to assess its financial situation and determine if they should buy common stock in that company.

Directions for Lesson/Activity/Project:

Introduction - Presenter (guest speaker) should give a brief overview of the use of financial ratios in the operation and planning of a business. Specific examples from his/her own business experience should be incorporated into the presentation.

2. ***Complete the introduction with the agenda for the lesson:***
    - Definitions and formulas for select financial ratios
    - Calculation of select financial ratios
    - Interpretation (the 'so what') of the ratios
    - Plans for follow-up activities

3. ***Definitions and Formulas*** - Pass "Ratio Definitions and Formulas" handout to students. Presenter provides an overview of the ratios to be calculated and studied. The presenter can elaborate on the use of the selected ratios providing 'real' experiences of their applications in business.

Note: The selection of ratios can be tailored to meet the needs of the class/course. We chose to use only five of the ratios and selected Gross Margin, Expense, Net Profit Margin, Return on Investment and Debt to Equity. This selection best suited the level of exposure I desired for the students as well as the application I planned in a follow up activity.

4. ***Calculation of select financial ratios*** -

- Pass Comparative Financial Statements handout to students. Presenter explains the need for businesses to maintain financial statements with the Income Statement and Balance Sheet being the most important.
- Pass Comparative Financial Ratio Worksheet to students. Using this form, students calculate the selected ratios for the ABC and XYZ companies.

Once calculated students should discuss the meaning and significance of the numbers obtained, the 'so what' of the information. *For example:* Both companies have the same return on investment but a look at other ratios tells us that the operations of the companies are quite different. Again, there is a great deal of information to support discussion of the strengths and weaknesses of these two companies. In our discussion we were trying to determine the financial health of the company as one part of an analysis to decide if we should buy stock in the company. As with many real world circumstances, there is no right or wrong answer but rather an educated judgment that leads to a decision. Which company really is better off?

Suggested Assessment: My students will be required to calculate these same ratios using the financial statements from the annual report of a company they are following. These calculations form the basis of a financial overview of the company in the Individual Stock Assignment report. Also attached are the materials (1982 Georgia Pacific Financial Statements) I used for additional practice. They demonstrate an application to an actual business.

INDIVIDUAL STOCK ASSIGNMENT

NAME____________________________

COMPANY_________________________

DATE OF ANNUAL REPORT__________

SELECT A COMPANY:

a. Write to the company and obtain the latest annual report.

b. Chart (record and graph) the value of its stock for a period of six weeks.

c. Locate at least two articles about the company in newspapers or magazines.

d. Evaluate the company using the attached guide for evaluating stocks.

e. Prepare a report using the below listed format and guidelines.

REPORT FORMAT (use this sheet as a cover page)

I. Give an overview of the company to include: primary business(es) and activity, identification of president and chairman of the board, location of company headquarters, and company contributions to society.

II. Financial overview of the company.

III. Current status of this industry and the outlook for this company in the coming year.

IV. Overview of current economic issues and their impact on the company.

V. Would you recommend buying stock in this company? Explain.

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	ABC Biotech, Inc.	XYZ Technology, Inc.
Income Statement		
Sales	$ 1,000,000	$ 1,000,000
Cost of Goods Sold	720,600	736,000
Gross Profit	279,400	264,000
Operating Expenses	234,600	244,000
Operating Profit	44,800	20,000
Federal & State Taxes (40%)	17,920	8,000
Net Income	26,880	12,000
Balance Sheet		
Assets		
Cash	43,000	43,000
Accounts Receivable	157,000	109,600
Inventory	203,000	103,700
Other Current Assets	5,000	5,000
Current Assets	408,000	261,300
Fixed Assets	55,000	55,000
Total Assets	463,000	316,300
Liabilities		
Accounts Payable	78,000	46,000
Short-term Debt	52,000	106,300
Other Current Liabilities	3,000	3,000
Current Liabilities	133,000	155,300
Long-term Debt	25,000	25,000
Total Liabilities	158,000	180,300
Net Worth (Stockholders' Equity)	305,000	136,000
Total Liabilities & Equity	463,000	316,300

Comparative Financial Ratios

	ABC Biotech, Inc.	XYZ Technology, Inc.
Gross Margin % (measures purchasing and selling effectiveness		
Expense % (measures operating efficiency)		
Net Profit Margin % (measures total operating & managing efficiency)		
Inventory Turnover (measures the number of times a company could sell its entire inventory in a year)		
Accounts Receivable Collection Days (measures how many days it takes to collect on charge sales)		
Return on Assets (measures how efficiently the assets are being used)		
Financial Leverage (measures the ability to use other people's money to produce sales and profits)		
Return on Investment (ultimate measure of business and investment efficiency)		
Debt - to - Equity (measures financial risk due to leverage)		

Comparative Financial Ratios

	ABC Biotech, Inc.	XYZ Technology, Inc.
Gross Margin % (measures purchasing and selling effectiveness	27.9 %	26.4%
Expense % (measures operating efficiency)	23.5 %	24.4%
Net Profit Margin % (measures total operating & managing efficiency)	2.7 %	1.2%
Inventory Turnover (measures the number of times a company could sell its entire inventory in a year)	3.55x	7.1x
Accounts Receivable Collection Days (measures how many days it takes to collect on charge sales)	71.6 days	50 days
Return on Assets (measures how efficiently the assets are being used)	5.8 %	3.8%
Financial Leverage (measures the ability to use other people's money to produce sales and profits)	1:52x	2.33x
Return on Investment (ultimate measure of business and investment efficiency)	8.83%	8.83%
Debt - to - Equity (measures financial risk due to leverage)	25%	96%

Ratio definitions & formulas

Ratio	Formula
Gross Margin % (measures purchasing and selling effectiveness	Gross Profit/Sales
Expense % (measures operating efficiency)	Operating Expenses/Sales
Net Profit Margin % (measures total operating & managing efficiency)	Net Income/Sales
Inventory Turnover (measures the number of times a company could sell its entire inventory in a year)	Cost of Goods Sold/Inventory
Accounts Receivable Collection Days (measures how many days it takes to collect on charge sales)	Accounts Receivable/Credit Sales per Day assume 80% of sales are credit sales (800,000), 365 days in year, so average credit sales per day = 800,000/365 = 2,192
Return on Assets (measures how efficiently the assets are being used)	Net Income/Total Assets
Financial Leverage (measures the ability to use other people's money to produce sales and profits)	Total Assets/Net Worth
Return on Investment (ultimate measure of business and investment efficiency)	Net Income/Net Worth
Debt - to - Equity (measures financial risk due to leverage)	(ST Debt + LT Debt) / Net Worth

BALANCE SHEETS

Dollar amounts and shares are in thousands

	December 31	
Assets	1982	1981
Current assets		
Cash	$ 36,000	$ 30,000
Receivables, less allowances of $15,000 and $11,000	572,000	503,000
Inventories (Note 1)	699,000	717,000
Refundable income taxes	—	50,000
Prepaid expenses	23,000	23,000
	1,330,000	1,323,000
Natural resources (Notes 1 and 7)		
Timber and timberlands	748,000	752,000
Coal, minerals, natural gas and oil	151,000	120,000
	899,000	872,000
Property, plant and equipment (Notes 1, 3 and 7)		
Land, buildings, machinery and equipment, at cost	4,642,000	4,513,000
Accumulated depreciation	(1,840,000)	(1,732,000)
	2,802,000	2,781,000
Other assets (Note 12)	119,000	84,000
	$5,150,000	$5,060,000

	December 31	
Liabilities and shareholders' equity	1982	1981
Current liabilities		
Commercial paper and other short-term notes (Note 7)	$ 195,000	$ 150,000
Current portion of long-term debt	63,000	292,000
Accounts payable	340,000	295,000
Accrued compensation	62,000	61,000
Current income taxes	5,000	—
Other current liabilities	113,000	96,000
	778,000	894,000
Long-term debt, excluding current portion (Note 7)	1,618,000	1,487,000
Deferred income taxes (Note 3)	550,000	545,000
Employee stock purchase plan (Note 9)	6,000	5,000
Redeemable preferred stock (Note 8)		
Adjustable rate convertible preferred stock, without par value, authorized 10,000 shares (involuntary liquidating value $39.00 per share)		
Shares issued and outstanding		
Series A, 4,141	145,000	142,000
Series B, 957	32,000	31,000
Series C, 1,343	32,000	30,000
	209,000	203,000
Common shareholders' equity (Notes 4, 7 and 9)		
Common stock, par value $.80, authorized 150,000 shares, 103,289 and 103,277 shares issued	83,000	83,000
Additional paid-in capital	989,000	1,028,000
Retained earnings	978,000	950,000
Less — Common stock held in treasury, at cost; 1,953 and 4,340 shares	(61,000)	(135,000)
	1,989,000	1,926,000
	$5,150,000	$5,060,000

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Georgia-Pacific Corporation and Subsidiaries

STATEMENTS OF INCOME

Dollar amounts and shares are in thousands

	Year ended December 31		
	1982	1981	1980
Net sales	$5,402,000	$5,414,000	$5,016,000
Costs and expenses			
Cost of sales (Note 1)	4,475,000	4,455,000	4,018,000
Selling, general and administrative (Note 2)	394,000	327,000	301,000
Depreciation and depletion (Notes 1, 2 and 5)	356,000	277,000	267,000
Interest (Note 1)	186,000	125,000	79,000
Other income, net (Note 2)	(76,000)	—	—
	5,335,000	5,184,000	4,665,000
Income before income taxes, extraordinary items and cumulative effect of accounting change	67,000	230,000	351,000
Provision for income taxes (Note 3)	15,000	70,000	108,000
Income before extraordinary items and accounting change	52,000	160,000	243,000
Litigation settlement, net of taxes (Note 10)	(56,000)	—	—
Gain on exchange of bonds (Note 4)	27,000	—	—
Cumulative effect of change in accounting for investment tax credits (Note 5)	130,000	—	—
Net income	$ 153,000	$ 160,000	$ 243,000
Per common share — Primary (Note 1)			
Income before extraordinary items and accounting change	$ .48	$ 1.51	$ 2.33
Litigation settlement	(.52)	—	—
Gain on exchange of bonds	.25	—	—
Accounting change	1.23	—	—
Net income	$ 1.44	$ 1.51	$ 2.33
Per common share — Fully diluted (Note 1)			
Income before extraordinary items and accounting change	$ .50	$ 1.49	$ 2.27
Litigation settlement	(.51)	—	—
Gain on exchange of bonds	.24	—	—
Accounting change	1.19	—	—
Net income	$ 1.42	$ 1.49	$ 2.27

The accompanying notes are an integral part of these financial statements.

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GM %

$$\frac{\text{NET SALES} - \text{COST OF SALES}}{\text{NET SALES}}$$

$$\frac{5{,}402 - 4{,}475}{5{,}402} = \frac{927}{5{,}402} = \underline{17.16\%}$$

EXPENSE %

$$\frac{\text{SG\&A} + \text{DEPR \& DEPL} + \text{INTEREST} - \text{OTHER INCOME}}{\text{NET SALES}}$$

$$\frac{394 + 356 + 186 - 76}{5{,}402} = \frac{860}{5{,}402} = 15.92\%$$

NET PROFIT MARGIN %

$$\frac{\text{NET INCOME}}{\text{NET SALES}} = \frac{153}{5{,}402} = 2.83\%$$

RETURN ON INVESTMENT %

$$\frac{\text{NET INCOME}}{\text{COMMON STOCKHOLDERS' EQUITY}} = \frac{153}{1{,}989} = 7.69\%$$

COULD INCLUDE PREFERRED STOCK →

DEBT - TO - EQUITY

$$\frac{(\text{COMM. PAPER \& S.T. NOTES}) + (\text{C/P LTD}) + (\text{LONG-TERM DEBT})}{\text{COMMON STOCKHOLDERS' EQUITY}}$$

$$\frac{195 + 63 + 1{,}618}{1{,}989} = \frac{1{,}876}{1{,}989} = .94$$

RE: PREFERRED STOCK — SOME CONSIDER PREF. STOCK TO BE DEBT, SO IT WOULD BE INCLUDED IN NUMERATOR OF DEBT/EQUITY RATIO. IF VIEWED EQUITY, PREF STOCK WOULD BE INCLUDED IN DENOMINATOR OF BOTH ROI AN
DEBT/EQU

Alicia's Bridal Shoppe
and
The Formal House

Business Profile:

Alicia's Bridal Shoppe and The Formal House combined, have been serving the Puget Sound and British Columbia areas for over thirty-seven years. *Alicia's* is not only a complete bridal shop but also has the largest inventory of formal occasion gowns in the area. *The Formal House* rents and sells all the latest styles as well as the classics in tuxedos and accessories. *The Formal House* started the family-owned business in 1958 and *Alicia's* was added in 1980 to provide a full service wedding store. In that short time, *Alicia's* has managed to become one of the largest bridal shops north of San Francisco, and *The Formal House* is the only tuxedo rental store with its own stock of over 2,000 tuxedos north of Seattle.

The store provides the necessary services for your wedding day attire from the initial sale to the expert alterations that they offer because *Alicia's* and *The Formal House* are one of the few wedding related shops in the country that continue to be full service.

The store has approximately 15 employees. Career opportunities would include sales representatives, seamstresses, and clerical positions. The underlying reason *for Alicia's and The Formal House's* success lies in their employees. They are a truly supportive, caring team who are dedicated to making the customer their first priority. They honestly care about the customer from beginning to end. Their reputation in the community is synonymous with the best service available.

Alicia's and The Formal House staff need to have excellent communication, math, computer, reading, and teamwork skills in order to do their job effectively.

Workplace Applications Informational Interview

Business: Alicia's Bridal Shoppe and The Formal House
Address: 1400 N. State Street
Bellingham, WA 98225

Contact: Pam Needham
Phone: (360) 733-2563
Date of Visit: October 17, 1995

****

Management/Human Resources Questions

Primary products/services: Bridal and formal wear clothing and accessories.

What kind of person are you looking for? (personal attributes - employability)

- Personable
- Able to handle stress
- Team player
- Organized
- Independent thinker

How do you announce employment opening/recruitment notices?
Positions are offered through the newspaper, and word of mouth.

What kind of pre-screening do you do? (education/experience/other)

1. Education: minimum high school diploma.
2. Neat, good looking application without spelling errors.
3. Dress the part.

What type of interviewing do you do? One-on-one interviewing.

What are your most common reasons for terminating an employee?
Inability to perform; lack of effort or initiative.

What are the occupation titles within your workforce?

Seamstress
Shipping & receiving
Receptionist
Sales consultant
Buyer
Data Entry

What are the skills needed in five years? (workforce of the future) Computer literate (but not essential job requirement).

What type of retraining do you do?
Employee basic skills: paperwork, computer programs, products and trends, alterations.

What percentage of your workforce has a four year degree? 30%; Two year degree? 70%; High school degree only? 0%; Not high school graduate? 0%.

What kind of accommodations do you make for people with disabilities?
Due to space restraints of the building, none.

What is the role of employee organizations/unions in your company? N/A

First Line Supervisor Questions

Primary products/services: Bridal and formal wear clothing and accessories.

What kind of person are you looking for? Someone who is a hard worker, independent decision maker, and has the ability to be cheerful to customers in spite of difficult situations.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Sewing machine, computer, fax, Xerox, adding machine, calculating US/Canadian exchange, counting back change accurately.

How would you recommend we teach the work ethic to students?
Use real life examples, and show consequences for non-performance

What is the one thing you wish we would teach our students? Communication skills.

What is the most valuable skill an employee can bring to your department? Positive attitude.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Keep teaching those story problems.

What do you foresee to be the "future trends" in your business area? Older wedding parties.

Employee Questions (Seamstress and Salesperson -- 10+ years on the job)

What do you like most about your job? Flexibility, creativity, and helping people.

What do you like least about your job? There are no advancement possibilities; summer is the busiest time; dissatisfied customers; and money.

How did you choose this particular line of work? Fell into it.

What classes did you take in school that were most helpful?
Art, sewing, math, home economics, English, Latin.

What classes have been the least helpful? History, geography, shorthand.

What would be a problem situation that you might face in your daily work? How would you handle it? Interpersonal problems. I would listen and have to think on my feet.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school?
Math, psychology, keyboarding, music.

Could you describe 3-5 specific skills that you use regularly on your job?
- Communication/people skills
- Math
- Computer skills
- Art

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Getting a Job

Submitted By: Lori DeKruyf (teacher partner)
Pam Needham (business partner)

School: Lynden Christian High School
Business: Alicia's Bridal Shoppe and
The Formal House

Career Pathway Focus: Business and Marketing
Subject Area: English
Suggested Grade Level: 11 and 12

Category: Applied Communications

Skills Being Applied ***(the workplace application)*****:**
- Write a good resume and cover letter
- Filling in applications
- Successful interviewing

WA State Student Learning Goal: #1 and #4
Essential Student Learning Element(s):
- Communication #4 (effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: 1 1/2 hours of classroom time, plus additional homework time.

Materials Needed:
- ☐ Examples of good and bad applications, resumes, and cover letters
- ☐ Blank application form for each student
- ☐ Interview scenarios for role plays
- ☐ Interviewer questions handout
- ☐ Costumes (optional)
- ☐ Overhead projector

Lesson Overview:
Students will learn about the pre-screening, interviewing and follow-up process required as part of the job search process. More specifically, they will learn to write a cover letter and resume, practice good interviewing techniques, and learn post-interviewing procedures and etiquette.

Directions for Lesson/Activity/Project:
1. Pre-screening process--what works, what doesn't
    - resume and cover letter (*e.g.* of good and bad on overhead or as handouts).
    - letters of application (*e.g.* of good and bad on overhead or as handouts).
    - have students fill in partial application at this time.

2. Interview preparation--pre-interview tips
    - Dress, makeup
    - Body language - posture, eye contact, hand shake
    - Research the business - come prepared

3. Role play interviews
    - Bad scenario demos: customer service/computer software
      restaurant position
    - Good scenario demos: same as above, but do it "right"
      (Both the good and bad scenarios could be acted out by the cooperating teachers, or by a teacher and students. They should be kept fairly short.)
    - Student/student role plays: break into pairs - one is interviewer, one is applicant (provide interviewer questions handout).
    - Student/teacher role plays: time permitting, a few may role play for one of the following: paralegal, floral shop, interior design, bank construction, vet assistant, physical therapy, teacher.

4. Post interview tips
    - Call/write back
    - Thank you
    - Persistence

Suggested Assessment:
Students will write a cover letter, a resume, and fill in an application for either the participating business partner, or their present or approved future work-study site. Current work-study students will also follow up with an interview at their work-study site.

KEY BANK

Business Profile:

Key Bank of Washington is a banking subsidiary of KeyCorp, a multi-regional bank holding company headquartered in Cleveland Ohio.

KeyCorp ranks as the 11th largest bank holding company in the United States with more than $59 billion in assets and over 1,300 banking offices in 13 states. KeyCorp also maintains a $27 billion mortgage servicing portfolio, manages approximately $28 billion in assets in its investment management and trust operations, and operates the nation's 20th largest mutual fund business.

Key Bank of Washington offers sophisticated services and capabilities with local responsiveness and commitment. Key Bank of Washington was created through the consolidation of many local community banks, most recently Bellingham National Bank and Puget Sound Bank Corp. Our assets now total $6.8 billion dollars, making us the third largest commercial bank in Washington. Our strong capital position, adequate allowance for credit losses, low intangible asset level, and limited off-balance sheet exposure give us strong capital ratios that exceed regulatory minimums.

Key Bank of Washington and the related KeyCorp family of companies use our integrated strengths to develop long term financial partnerships with our customers. We view customer services as an unending process involving every employee of the organization. The internal communication process encourages discussion at all levels of the organization and promotes decisions that are based on the needs of our customers and our market. All credit and pricing decisions are made by Key Bank of Washington at the local level, while delivery systems are enhanced by drawing on the capital and personnel resources of the entire KeyCorp family.

Our vision is to be the first choice of those seeking world-class financial products and services.

Workplace Applications Informational Interview

Business: Key Bank of Washington
Address: 1200 12th Street
Bellingham, WA 98225

Contact: Patricia Wallis
Phone: (360) 676-6345
Date of Visit: Nov. 14, 1995

Management/Human Resources Questions

Primary products/services: Comprehensive line of financial products and services.

What kind of person are you looking for? (personal attributes - employability)

- Someone who can demonstrate that he/she can successfully work as a member of a team; work towards a common goal.
- Someone who demonstrates energy, enthusiasm and flexibility.
- Must be customer service oriented, have good math skills, attention to detail, sales and/or cashiering experience, computer familiarity/literacy, professional demeanor, and uses good common sense.

How do you announce employment opening/recruitment notices?
All positions are offered in-house first. If they are not filled from within or by reviewing current listings of outside applicants, we advertise in local newspapers and, occasionally, on college bulletin boards. We also have a toll free job hotline.

What kind of pre-screening do you do? (education/experience/other)

1. We examine education, technical expertise, employment history/continuity.
2. Based on that information, we conduct a screening interview.
3. If the candidate is then being considered for a specific position, we do reference checks and a credit check.
4. All applicants are finger-printed, but only after being hired. Their continued employment is contingent on the results of this screening.

What type of interviewing do you do? Principally one-to-one as a screening tool with the interview taking place at the specific Branch office. Then, frequently, by a two-person team (e.g. Department Manager and Assistant Manager.) We have occasionally used a team assessment approach with both internal and external applicants when making selections for upper level positions.

What are your most common reasons for terminating an employee?
Performance issues - inability to learn and apply technical or procedural processes.

What are the occupation titles within your workforce?

Teller
Loan Officer
Staff Supervisor
Sales & Service Manager
Customer Service Representative
Branch Operations Manager
Branch Operations Assistant
Administrative Specialist

What are the skills needed in five years? (workforce of the future)

- Human relations skills - commitment to extraordinary quality service, communication skills, ability to work effectively with people from broadly diverse backgrounds.
- Flexibility as to scheduling, work locations, assignments. Aptitude for multi-tasking.
- Advanced computer-related technical skills.

What type of retraining do you do? We have a variety of training programs in place for both technical and soft skills.

- Teller training, both technical and procedural
- Service standards
- Sales techniques
- Further training available to enhance skills and prepare for promotion.

What percentage of your workforce has a four year degree? plus/minus 20%; two year degree? +/- 20%; high school diploma only? >59%; not high school graduates? 1%

What kind of accommodations do you make for people with disabilities?
If we have an applicant who is capable of performing the major essential functions of the job but who is restricted, for whatever reason, from performing peripheral functions or from accessing the physical site of the job, we attempt to make reasonable accommodation. This would be judged on a case-by-case basis but examples might include construction of wheel-chair ramps, purchase of special key pads/touch pads or ergonomic office furniture or even some remodeling of employee lounge areas. However, major reconstruction of buildings, such as installing elevator shafts, likely would be classified as an unreasonable accommodation.

What is the role of employee organizations/unions in your company?
Key Corp employees deal directly with management in connection with all issues and interests. However, Key Corp acknowledges the legal right of its employees to form unions or other employee organizations if they so choose.

First Line Supervisor Questions

Primary products/services:

- Retail - deposit and credit products, trust, investment, brokerage, insurance.
- Business - transactional financing with lending and credit products tied to the business cycle.

What kind of person are you looking for? Someone with prior work experience or demonstration of skill. Focused on the customer yet having technology system ability. Multi-task oriented with strong verbal and technical writing skills. Someone who shows honesty, integrity and strong interpersonal and communication skills. Ability to count large sums of money quickly and accurately.

What type of retraining do you do? Company oriented policy, procedures and products.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Phone, computer, fax, security equipment, ten-key.

How would you recommend we teach the work ethic to students?
Practice being an employer/employee. Putting together their own activity of running a business so that they can understand:

- What management is doing.
- Ethics of dealing with customer service.
- Team concept.

What is the one thing you wish we would teach our students? How to cross-train themselves. It is important that they understand workers are paid by merit not by education. A persons has to demonstrate they can do a job prior to advancement. In other words, they must show their performance first.

What is the most valuable skill an employee can bring to your department? An attitude, because you can't fix it.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? N/A

What do you foresee to be the "future trends" in your business area? Delivering services across state lines, international banking, automation, and self-banking.

Employee Questions **(Teller – 1 year on the job)**

What do you like most about your job? Diversity and flexibility.

What do you like least about your job? Pay

How did you choose this particular line of work? I needed a foot in the door. This is the entry level position.

What classes did you take in school that were most helpful?
High School: Computer and basic office classes. Classes where we practiced social skills.
College: Math and spread sheets.

What classes have been the least helpful? Geometry

What would be a problem situation that you might face in your daily work? How would you handle it? Irate or impatient customers. This is where the people skills come in. Important to remain calm, and listen. Must be able to translate and have good problem solving skills to keep the customer happy.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? I would have worked harder to improve my self-confidence in the work force. I wished I would have challenged myself more.

Could you describe 3-5 specific skills that you use regularly on your job?

- People skills
- Typing/keyboarding
- Ten-key
- Telephone
- Computer navigating

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Financial Products Of The Future

Submitted By:

Janet Diener (teacher partner)
Patricia Wallis (business partner)

School: Bellingham High School
Business: Key Bank of Washington

Career Pathway Focus: Business & Marketing
Subject Area: Family & Consumer Sciences
Suggested Grade Level: 11 & 12

Category: Personal Finance

Skills Being Applied ***(the workplace application)***:

- Interpersonal Skills (working on teams)
- Thinking Skills (thinking creatively and problem solving)

WA State Student Learning Goal: #3
Essential Student Learning Element(s):

- Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)

Amount of Time Needed to Complete Lesson: one class period (minimum 55 minutes)

Materials Needed:

- ☐ Packets of a variety of materials such as construction paper, felt pens, cardboard, foil, glitter, stickers, fishing wire, yarn, glue scissors (one per team)
- ☐ Idea cards from *Thinkpak*
- ☐ Innovation handout
- ☐ Team evaluation worksheet

Lesson Overview:
Employees need to be team oriented and able to solve problems quickly. For this classroom exercise students will practice using the workplace competencies of thinking creatively, problem solving, and working in teams by creating a financial product of the future.

Directions for Lesson/Activity/Project:
Introduction: "The Elements of Teamwork"

- Prior to this class session, distribute Innovation handout so students can begin to think about the skills needed for effective teamwork.
- Lead a discussion on the elements of teamwork. List ideas on chalkboard.

Team Exercise: "Banking in the 21st Century"
Define innovation by saying that everything new is really just an addition to or modification of something that already exists. What type of bank products and services already exist? If needed, prompt students (checking accounts, ATM cards, savings accounts, mutual funds, credit cards, and so on). Today you will innovate a financial product of the future:

1. Brainstorm to develop a new deposit or credit service tool:
   thinkpak idea card (each team should get a different one)
2. Create a visual example:
   use materials in packet to create an example of your product
   (each team gets one packet)
3. Prepare a 2 minute presentation:

- Who would use it?
- What are the advantages/benefits?
- What will it cost the consumer?
- What is the benefit to the financial institution? (helpful to have this on transparency)
- Watch your time...you will have 17 minutes.

Number students off 1-5; designate work space; suggest that they assign roles (recorder, timekeeper, speaker, etc.).

Monitor students as they work in their assigned teams and help them focus their thinking.

Report Out: Each team gives a short presentation.

Closure: Each team completes a team evaluation form.

Suggested Assessment: Team Evaluation Form

FAMILY
CONSUMER
SCIENCES
EDUCATION

KEY BANK

Innovative

FINANCIAL PRODUCTS OF THE FUTURE

Banking
in the
21st Century

Coming on Friday 11/17

What skills are needed for a team to be successful?

FAMILY & CONSUMER SCIENCES EDUCATION

KEY BANK

FINANCIAL PRODUCTS OF THE FUTURE
"Banking in the 21st Century"

Purpose: to practice using the workplace competencies of working in teams, thinking creatively, and problem solving.

Team Evaluation:

Our team used the team work skills of______________________________

____

____

____

____

We did a great job of____

____

because____

____

____

We could have done better at__________________________________

____

______________________________ if we had____________________

____

____

Team Signatures:

__________________________ __________________________

__________________________ __________________________

__________________________ __________________________

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Workplace Skills in Banking

Submitted By: Jenny Kubic (teacher partner)
Sharon Baker (business partner)

School: Ferndale High School
Business: Key Bank, Ferndale

Career Pathway Focus: Business and Marketing
Subject Area: English
Suggested Grade Level: 9 - 11

Category:

Skills Being Applied ***(the workplace application)*****:** Communication, cooperation, self-assessment

WA State Student Learning Goal: #1 and #4
Essential Student Learning Element(s):

- Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)
- Communication #4 (makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: 30 minutes

Materials Needed:

☐ Colored pens
☐ Large sheets of blank paper

Lesson Overview: This lesson helps students connect the skills used in the workplace to similar skills taught and used in the classroom.

Directions for Lesson/Activity/Project:
In groups of 3-4, students will brainstorm a list of skills that they think are used in the banking industry. Each group has one large sheet of paper and each student in the group uses a different colored pen for their responses. The paper is passed around from person to person. Group members write one new idea each turn. The goal is to fill the entire page with ideas.

Once full, the papers are taped up on the wall and the class returns to one large group. The community professional (bank representative) reviews the skills listed, adds any that might be missing, and circles important skills for emphasis.

During the class discussion, connections are made between the skills taught and practiced in school and those needed to be successful in banking.

Suggested Assessment: In a brief oral presentation, individual students list three skills they recognize to be important to their own personal academic/career goals and state how they plan to improve them during the next few years.

WORKPLACE SKILLS – BANKING

The following is a list of workplace skills necessary for the banking industry...

Penmanship - writing is for communication; it has to be legible to all.

Writing - you must be able to use English grammar well in all written methods of communication (letters, memos, etc.).

Sales - customers needs must be assessed and appropriate sales directed to them.

Communication - talking to people, writing letters, and memos, phone sales.

Interpersonal skills - dealing with all kinds of people effectively.

Problem solving - constantly working with a wide variety of problems; helping others.

Math - adding, subtracting, currency exchanges, etc.

Counting quickly - for deposits and withdrawals.

Accuracy - essential! you have to get all the input right.

Organization - lots of paper work must be dealt with and records kept.

Prioritization - there are many things to do; choices must be made; work completed.

Delegation - one person can't do it all; jobs must be given to others.

Note taking - information must be recorded; your memory can only be stretched so far!

Computer skills - computers are used for all aspects of processing information.

Self-directed work - employees need to know what to do without being told; must be self-motivated.

Decision-making - to solve problems and get the job done.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Credit and Loans

Submitted By: Jenny Kubic (teacher partner)
Sharon Baker (business partner)

School: Ferndale High School
Business: Key Bank, Ferndale

Career Pathway Focus: Business and Marketing
Subject Area: English
Suggested Grade Level: 11 - 12

Category:

Skills Being Applied ***(the workplace application)*****:**
- Following instructions
- Clear and concise writing skills
- Estimating

WA State Student Learning Goal: #1
Essential Student Learning Element(s):
- Reading #2 (reads to construct meaning from a variety of texts for a variety of purposes)
- Writing #3 (writes in a variety of forms for a variety of audiences and purposes)
- Communication #2 (student listens and views for understanding)

Amount of Time Needed to Complete Lesson: 25 - 35 minutes

Materials Needed:
- ☐ Loan Applications (original samples from a local bank)
- ☐ Overheads of Loan Applications

Lesson Overview:
Students are introduced to the key concepts of establishing good credit and how to fill out loan application forms. The concepts of financial planning and goal setting are also introduced.

Directions for Lesson/Activity/Project:
The community banking professional discusses how to establish good credit with the class. The overhead, or board is used for key terms. Students take notes on terms. Loan applications are passed out, and using the overhead projector the community professional walks the students through the loan application process. Connections are made to various types of loans, including student loans, and further information is handed out to those who request it.

Suggested Assessment: Students list ways that they might need to improve their credit and set goals for achieving good credit.

KEY BANK

CONSUMER LOAN APPLICATION

BRANCH NO	DATE RECEIVED
LOAN OFFICER'S NO	DATE COMPLETED

I HEREBY APPLY FOR A LOAN OF $ ______ TO BE PAID OVER ______ MONTHS ON THE ______ OF EACH MONTH.

PURPOSE OF LOAN ______

COLLATERAL OFFERED ______

☐ I AM APPLYING FOR CREDIT INDIVIDUALLY

☐ I AM APPLYING TO CO-SIGN A LOAN FOR ______

☐ I AM APPLYING FOR CREDIT JOINTLY WITH ______

NOTICE. A separate application is required from any co-applicant (except spouse if spouse information is included on this application). If you are relying on receipt of alimony, child support or separate maintenance payments from a former spouse to establish your credit worthiness, a separate application for your former spouse may be required.

APPLICANT - Include information about your marital status only if you reside in Washington or another community property state.

PERSONAL

NAME	BIRTHDATE	SOCIAL SECURITY NUMBER	
STREET ADDRESS, CITY, STATE, ZIP		HOW LONG	OWN OR RENT?
FORMER STREET ADDRESS, CITY, STATE, ZIP		HOW LONG	OWN OR RENT?
HOME PHONE ( ) - DRIVER'S LICENSE NUMBER	MARITAL STATUS ☐ MARRIED ☐ SEPARATED ☐ UNMARRIED	LIST ANY OTHER NAMES UNDER WHICH YOU HAVE BEEN GRANTED CREDIT	AGES OF DEPENDENTS

EMPLOYMENT & INCOME

EMPLOYER'S NAME AND ADDRESS		BUSINESS PHONE ( ) -
POSITION TITLE	LENGTH OF CURRENT EMPLOYMENT	MONTHLY INCOME * ☐ GROSS ☐ NET $
PREVIOUS EMPLOYER'S NAME AND ADDRESS	PREVIOUS POSITION TITLE	LENGTH OF PREVIOUS EMPLOYMENT*

LIST ANY OTHER INCOME INCLUDING AMOUNT AND SOURCE * **You do not have to list income from alimony, child support or separate maintenance unless you want the bank to consider it as part of this loan application. If you are married, your earnings, your spouse's earnings and all "other income" is presumed to be community property unless you indicate otherwise.**

[illegible] to be discontinued or reduced before the loan you are requesting is paid off? ☐ Yes (explain) ☐ No

SPOUSE - Complete this section for your spouse if you are married and a resident of Washington or another community property state.

NAME		LIST ANY OTHER NAMES UNDER WHICH SPOUSE HAS BEEN GRANTED CREDIT
[illegible]	SOCIAL SECURITY NUMBER	BUSINESS PHONE NUMBER ( ) -
EMPLOYER'S NAME AND ADDRESS	POSITION TITLE	LENGTH OF CURRENT EMPLOYMENT	MONTHLY INCOME * ☐ GROSS ☐ NET $
PREVIOUS EMPLOYER'S NAME AND ADDRESS		PREVIOUS POSITION TITLE	LENGTH OF PREVIOUS EMPLOYMENT

PERSONAL/FAMILY REFERENCES

NAME AND ADDRESS	RELATIONSHIP	PHONE NUMBER
		( ) -
		( ) -
		( ) -
		( ) -

BANK USE ONLY

ACAPS # ______ DEBT SERVICE WITH R/E BASED ON GROSS INCOME ______ DEBT SERVICE WITH R/E BASED ON NET INCOME ______

BANK LOAN DECISION ☐ APPROVED ☐ DECLINED ☐ WITHDRAWN BY ______ DATE ______

LOAN DECISION COMMUNICATED TO ______ BY ______ DATE ______

COMMITMENT INFORMATION INTEREST RATE ______ % TERMS AND CONDITIONS ______ COMMITMENT ENDS ______

BEST COPY AVAILABLE

Member FDIC

BANK/DEPOSIT ACCOUNT REFERENCES

NAME OF INSTITUTION	BRANCH	TYPE OF ACCOUNT	ACCOUNT NUMBER

FINANCIAL INFORMATION

If you pay alimony, child support or separate maintenance, please include them as an obligation. If married and a resident of Washington or another community property state, include obligations, accounts and references of both spouses. All obligations of both spouses are considered community liabilities unless you indicate otherwise.

ASSETS	CURRENT VALUE	LIABILITIES	TO WHOM	BALANCE OWING	MONTHLY PAYMENTS
CASH IN BANKS / DEPOSIT INST		FRIENDS / RELATIVES			
IRA / VESTED PENSION		CHILD SUPPORT ALIMONY / MAINTENANCE			
STOCKS / BONDS		RENT			
HOME Purchase Price $ Date Acquired	MARKET VALUE	HOME MORTGAGE			
AUTO YR MAKE		AUTO LOAN			
AUTO YR MAKE		AUTO LOAN			
BOAT YR MAKE		BOAT LOAN			
PERSONAL HOUSEHOLD PROPERTY		BANK CARDS #			
LIFE INSURANCE Face Amount $	NET CASH VALUE	#			
OTHER PROPERTY (Describe)		DEPT STORE #			
		#			
		#			
		OTHER LOANS			

TOTAL ASSETS ☐

TOTAL LIABILITIES ☐

IF YOU ANSWER YES TO ANY OF THE FOLLOWING QUESTIONS, PLEASE EXPLAIN (Use separate sheet if necessary)

YES	NO	
☐	☐	HAVE YOU EVER DECLARED BANKRUPTCY?
☐	☐	HAVE YOU EVER HAD ANY PROPERTY REPOSSESSED?
☐	☐	DO YOU GUARANTEE OR CO-SIGN ANY INDEBTEDNESS FOR OTHERS?

GOVERNMENT MONITORING INFORMATION - Please read this section carefully.

COMPLETE THE INFORMATION IN THIS SECTION ONLY IF: you are applying for a loan and more than half of the money is being used to purchase or improve a home. **OR** is being used to refinance an existing loan that was used to purchase or improve a home.

INFORMATION FOR GOVERNMENT MONITORING PURPOSES

The following information is requested by the federal government for certain types of loans related to a dwelling in order to monitor the lender's compliance with equal credit opportunity, fair housing and home mortgage disclosure laws. You are not required to furnish this information but are encouraged to do so. The law provides that a lender may neither discriminate on the basis of this information nor on whether or not you choose to furnish it. However, if you choose not to furnish the information, under federal regulations the lender is required to note race or nationa origin and sex on the basis of visual observation or surname. If you do not wish to furnish the information, please check below.

APPLICANT ☐ I do not wish to furnish this information **Sex** ☐ Female ☐ Male

Race or National Origin

☐ American Indian, Alaskan Native ☐ Asian, Pacific Islander ☐ Black
☐ Hispanic ☐ White, not of Hispanic origin
☐ Other (specify) ____________________

CO-APPLICANT ☐ I do not wish to furnish this information **Sex** ☐ Female ☐ Male

Race or National Origin

☐ American Indian, Alaskan Native ☐ Asian, Pacific Islander ☐ Black
☐ Hispanic ☐ White, not of Hispanic origin
☐ Other (specify) ____________________

NOTICE Neither acceptance of this application by the bank nor assistance in completing it implies any commitment to grant the loan or credit accommodation requested. This decision will be made only after review, and the bank's decision will then be communicated to you. Any commitment made will remain in effect for 30 days unless otherwise extended in writing.

I CERTIFY THAT THESE STATEMENTS ARE COMPLETE AND TRUE, AND THAT I AM NOT LIABLE FOR ANY DEBTS OTHER THAN THOSE SPECIFICALLY LISTED. YOU ARE AUTHORIZED TO CHECK MY CREDIT AND EMPLOYMENT HISTORY AND TO ANSWER QUESTIONS ABOUT YOUR CREDIT EXPERIENCE WITH ME.

X ____________________ BORROWER'S SIGNATURE ____________ DATE

X ____________________ CO-BORROWER'S SIGNATURE ____________ DATE

BEST COPY AVAILABLE

Education Loan Fact Sheet

KEY CORP

Loan Program	Federal Subsidized Stafford Loan	Federal Unsubsidized Stafford Loan		Federal PLUS Loan
Borrower	Dependent or independent student	Dependent student	Independent student	Parent of dependent undergraduate student
Interest Rate	Variable: tied to 91-day Treasury Bill (adjusts every July 1st). Maximum rate 8.25%.			Variable: tied to 52-week Treasury Bill (adjusts every July 1st). Maximum rate 9%.
Annual Loan Maximums	Based on financial need, you may borrow up to: Year 1 - $2,625 Year 2 - $3,500 Years 3-5 - $5,500 Graduate and Professional - $8,500	Combined Subsidized and Unsubsidized Stafford Loan Limits (Dependent Student): Year 1 - $2,625 Year 2 - $3,500 Year 3-5 - $5,500	Unsubsidized Stafford Loan Limits (Independent Student): Year 1 - $4,000 Year 2 - $4,000 Years 3-5 - $5,000 Graduate and Professional - $10,000	Cost of attendance - Student's financial aid = Your annual borrowing limit
	Your Subsidized and Unsubsidized Stafford Loan amounts will be determined by the school. The cost of education and your financial need analysis will be considered, among other factors.			
Aggregate Loan Maximums	For combined Subsidized and Unsubsidized Stafford Loans: Dependent undergraduate maximum - $23,000 Independent undergraduate maximum - $46,000. Graduate/professional maximum - $138,500 Loan maximums are based on academic program length. See your Financial Aid Office for details.			Unlimited
Interest Deferment Options	The federal government pays loan interest while you are in school.	Loan interest accrues during deferment periods. Students have the option to make interest payments while in school.		No
Grace Period	6 months. Interest paid by Federal Government.	6 months. Borrower is responsible for interest accrued during the grace period.		None. Repayment begins 30 days after the loan is fully disbursed.
Monthly Payments	Subsidized and Unsubsidized Stafford Loans are paid back as one loan. Minimum $50/month; maximum term 10 years			Minimum $50/month; maximum term 10 years
Loan Disbursements Paid to:	School and student	School and student	School and student	School and parent
Fees	Origination Fee: 3% Guarantee Fee: up to 1%	Origination Fee: 3% Guarantee Fee: up to 1%	Origination Fee: 3% Guarantee Fee: up to 1%	Origination Fee: 3% Guarantee Fee: up to 1%
Eligibility for Loan Programs	• Be accepted to pursue a degree at an eligible institution. • Qualify as a U.S. citizen or permanent resident and be in good standing on any previous education loans. • Must maintain at least half-time student status during loan period. • Register with the Selective Service if required to do so.			Eligibility for PLUS Loan – no adverse credit history

Expert help is just a phone call away. Call us at 1-800-361-4KEY.

Workplace Applications Informational Interview

Business: Key Bank
Address: 1000 Lakeway Drive
Bellingham, WA 98226

Contact: Susie Marino, Lennette Corwin
Phone: (360) 676-6152
Date of Visit: October 30, 1995

* * *

Management/Human Resources Questions

Answers to the Human Resources questions are the same as for other Key Bank interviews.

What type of retraining do you do?
Most skills are acquired through on-the-job training. We have a variety of training programs in place for both technical and soft skills.

- Teller training, both technical and procedural.
- Service standards.
- Sales techniques.
- We also have internal updates on computer systems--tutorials are available.
- Further training is available to enhance skills and prepare for promotion.

What percentage of your workforce has a four year degree? 1%; 2 year degree? 0%; High school diploma only? 99%; Not high school graduates? 0% **(figures for this Branch office)**

First Line Supervisor Questions

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? We expect all of our employees to be computer literate, learn specific bank programs, possess excellent 10-key calculator skills, and be able to operate a 5-line phone system.

How would you recommend we teach the work ethic to students?
Emphasize that promptness is essential! Responsibility and politeness is also a must. A person's body language and mannerisms say a great deal about a person.

What is the one thing you wish we would teach our students?
Listening skills! --One could learn a lot from just listening!

What is the most valuable skill an employee can bring to your department?
Customer service skills--dealing with people. It is very hard to teach someone human skills.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Home economics and the arts are not really related to this business.

What do you foresee to be the "future trends" in your business area?
Banking has become more of a sales oriented business and is much more competitive today. Customer Service is the one of the most important aspects of the banking industry.

Employee Questions (Loan Officer - 15 years on the job)

What do you like most about your job? Dealing with people and being able to help them with all of their banking needs.

What do you like least about your job? Having to decline a loan.

How did you choose this particular line of work? Offered a position as a Proof Operator when I finished high school and the idea of having my own money was appealing!

What classes did you take in school that were most helpful? Speech, Arts and Drama were the most helpful--they helped me develop people skills. Business classes were also helpful in developing professional and technical skills.

What classes have been the least helpful? Gym.

What would be a problem situation that you might face in your daily work? How would you handle it? Customer confrontation--not satisfied with decisions made about their loan, payments, etc.. I would handle this by listening to their concerns and then conducting research to see if I could resolve the issue.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Writing correspondence--my job requires written forms of communication. I also should have furthered my math skills.

Could you describe 3-5 specific skills that you use regularly on your job?

- Communication skills--both oral and written.
- Sales oriented business and maintaining positive customer relations is imperative.
- Math skills used each day to do various computations and calculations.
- Critical thinking skills are used to carry out basic procedures and to make decisions throughout the day.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: The Banking Industry and the Development of a Positive Work Ethic

Submitted By: Paulette Charvet (teacher partner)
Susie Marino (business partners)
Lennette Corwin

School: Mount Baker High School
Business: Key Bank

Career Pathway Focus: Business and Marketing
Subject Area: Business or
Consumer & Family Sciences
Suggested Grade Level: 9th-12th

Category: Consumer Finances

Skills Being Applied (the workplace application):
- Public relations skills
- Work performance skills

WA State Student Learning Goal: #1 and 4
Essential Student Learning Element:
- ◆ Communication #2 (listens and views for understanding)

Amount of Time Needed to Complete Lesson: 1 hour

Materials Needed:
- ☐ Overhead transparencies for team building game
- ☐ Quote for communications game
- ☐ 5 C's of credit

Lesson Overview:
The students have just completed a unit on careers, and have begun a unit on banking, credit, and finance. The business partners served as guest speakers, involving students in a discussion about various aspects of the banking industry, banking career opportunities, and why they personally decided to enter into the banking field. They also addressed the importance of establishing a good work ethic and how students can develop this skill through their classroom assignments, and various school and community activities.

Directions for Lesson/Activity/Project:
The day before the business partners were to come to class, each student wrote a minimum of three questions that they could ask during the guest speakers presentation.

Introduction of business partners
Each partner discussed how she moved from entry level positions up to management positions. Topics included: skills students need to learn now that will be useful in the banking industry, dress code, professionalism, attitude, handling stress, and performance reviews.

Classroom Activity -- Communication

The partners lead the students through a communications skill-building activity/game, which emphasized the team concept. One student was given a quote which she had to repeat to another student. The process was repeated until each student had an opportunity to listen. (Similar to telephone)

The loan officer discussed the 5 C's of Credit:

1. *Character*, the most important aspect, basically looks at a person's credit history, stability, loan purpose, etc.
2. *Capacity*--how will a person be able to repay a loan.
3. *Capital*--what is a person's level of income.
4. *Conditions*--purpose of the loan.
5. *Collateral*--does the person have anything of value that is owned that the bank could take if that person doesn't repay his/her loan.

- This discussion was intended to be an eye opening discussion for most students, so they would realize that a person cannot just go in and ask for some money, that they need to start building a credit history for themselves, and how all of their financial decisions--either positive or negative--will affect them for the rest of their life.

Classroom Activity -- Teambuilding

- The business partners then led the students through a teambuilding/memory activity. Each student looked at a diagram with about 25 items on it. They then had 1 minute to write down what they remembered seeing. They then got a partner and tried to come up with a complete list between the two of them.

Discussion -- Question and Answer Period

Suggested Assessment:

Students were to complete a writing assignment summarizing the importance of developing a positive work ethic. They needed to include how dress code, professionalism, attitude, and being a team player is a part of work ethic. They also needed to identify the steps that they can begin taking now to acquire a positive work ethic. The second portion of the assessment was to summarize the *5 C's of Credit* and then identify their (student) current strengths and weaknesses when it comes to money management, and what they can do now to begin developing a strong credit history.

Workplace Applications Informational Interview

Business: Key Bank
Address: 1974 Front Street
Lynden, WA 98264

Contact: Diane Bergquist
Phone: (360) 354-7500
Date of Visit: Nov. 2, 1995

* * *

Management/Human Resources Questions

Answers to the Human Resources questions are the same as for other Key Bank interviews.

What kind of pre-screening do you do? (education/experience/other) We review applications and look for experience in the following five areas: cashiering, customer service, typing speed of 25 wpm, 10 key, and excellent communication skills.

What percentage of your workforce has a four year degree? 50%; 2 year degree? 0%; High school diploma? 50%; Not high school graduates? 0% **(figures for this Branch office)**

First Line Supervisor Questions

Primary products/services: Helping people meet their financial needs - investing, borrowing and depositing money.

What kind of person are you looking for? (personal attributes - employability) People who work well with people and who will integrate with current staff.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? 10 key and typewriter.

How would you recommend we teach the work ethic to students? It is hard to "teach" the work ethic. Perhaps encouraging student accountability, self respect and respect for others.

What is the one thing you wish we would teach our students? Respect for one another.

What is the most valuable skill an employee can bring to your department? Energy and motivation to keep the momentum going.

What processes have become obsolete in the last couple of years? What do we no longer need to teach?

1. Much of the machinery and equipment.
2. Mindset that banks merely "exist" is obsolete; they are a viable retail business that needs to market its products and services.

What do you foresee to be the "future trends" in your business area? Managing local markets, automated banking via the computer and telephones.

Employee Questions (Paying & Receiving Teller -- 6 years on the job)

What do you like most about your job? Working with numbers and the challenge of balancing the cash in drawer with records on computer at the end of the day.

What do you like least about your job? Unhappy customers, people with troubles.

How did you choose this particular line of work? My Father was in banking; I like numbers and was always told I was good with numbers.

What classes did you take in school that were most helpful? Bookkeeping, accounting and 10-key.

What classes have been the least helpful? Letter writing and business correspondence.

What would be a problem situation that you might face in your daily work? How would you handle it? Dealing with unhappy customers is the most challenging aspect of the job. The best way to deal with them is to know all aspects of the job, since things in banking change so frequently, and not take negative comments personally.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? I wish I would've spent more time learning about computers, not just how to use them.

Could you describe 3-5 specific skills that you use regularly on your job?

- Math
- 10-key calculator
- Communication skills (customer relations)
- Phone skills
- Team work (compatibility with co-workers)
- Basic math skills
- Organization sills.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Hiring Practices and Interviewing Skills

Submitted By: Laurel Kunesh (teacher partner)
Diane Bergquist (business partner)

School: Whatcom Community College
Business: Key Bank of Washington

Career Pathway Focus: Business and Marketing
Subject Area: Business & Communication
Suggested Grade Level: College and Pre-college

Category: Interviewing & Self-Marketing Skills

Skills Being Applied *(the workplace application)*:
- Analyzing transferable skills
- Following instructions during the job search process
- "Following the lead" from a potential employer during the job interview

WA State Student Learning Goal: #3
Essential Student Learning Element(s):
- Communication # 4 (making effective presentations using a variety of skills and communication strategies)
- Communication # 6 (evaluating the effectiveness of communication)

Amount of Time Needed to Complete Lesson: 2 to 3 hours during one class period.

Materials:
- ☐ Sample interview question forms
- ☐ Camcorder
- ☐ Television monitor and VCR

Lesson Overview:
Strong interviewing skills are absolutely essential for improving a job candidates success of being selected for employment with a particular company. Interview skills can be learned and should definitely be practiced before applying for a job.

Students will hear from the employer what the expectations are for entering the banking industry and what she looks for when interviewing potential employees. Students will participate in a mock interview while being video taped. The tape will be played for the group and a discussion will follow. This activity will give students a competitive edge in interviewing skills.

Directions for Lesson/Activity/Project:
1. Students will prepare for the interview by creating a list of their transferable skills, outlining their work history, reading sample job descriptions, and writing out answers to typical interview questions.

2. Presenter will outline the skills needed for entering the banking industry, and what employers are looking for in potential employees (attributes, qualities, skills). The guest speaker will also share some insights into the meaning behind certain interview questions and how students might better prepare themselves to respond to particular questions.

3. Next, students will line up and take consecutive turns while the video camera is running non-stop. The interviewer will ask 3 to 5 questions of each student.

Suggested Assessment:
While watching the video, students will take note of the behaviors and answers they see that they want to incorporate in their next interview as well as what they do **not** want to do. A discussion will follow with input from the presenter. Feedback must be generic and non-personal. Tips will be given on the do's and don'ts of interviewing, legal issues will be discussed as well as fair and unfair pre-employment questions.

Note to those reviewing this lesson...the lesson was designed to be used with a *Displaced Homemakers* program that is offered at the community college. The women in this program are typically preparing themselves to seek employment after being out of the job market for many years. Because self-esteem issues are often an integral part of improving job seeking skills, students need a "non-threatening" atmosphere to practice and improve their skills.

Workplace Applications Informational Interview

Business: Key Corp and Key Bank
Address: 101 E. Holly, PO Box 1918
Bellingham, WA 98227

Contact: Ed Roddy
Phone: (360) 676-6376
Date of Visit: Nov. 2, 1995

****

Management/Human Resources Questions

Answers to the Human Resources questions are the same as for other Key Bank interviews.

First Line Supervisor Questions

Primary products/services: As a Commercial Loan Officer for Key Bank of Washington, I review loan applications from small business owners wishing to finance equipment or buildings needed to conduct their business. The bank considers small business loans any amount less than $250,000.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using?

1. 90 % of the Key Bank employees use computers. Training is provided whenever a new piece of software is incorporated.
2. Telephone operation and etiquette are essential. That may seem like a minor point until you consider how important it is to greet customers in such a way that they feel good about doing business with the bank, and how important it is to transfer customers without losing them.
3. Many of the employees use 10-keys (which is good training to have). I use a typewriter for letters. Fax machines, business/finance calculators and copiers are all useful. With a business/finance calculator I can show a customer instantly what their monthly payment will be on a loan.

How would you recommend we teach the work ethic to students?
Workers, particularly younger workers, need to know attendance is very important. It's very upsetting to have an employee who fraudulently calls in sick or asks for time off. In fact, when people apply to our bank and we check their references, attendance is something we always inquire about. Of course we also have to be concerned about people with "sticky fingers". I'm always shocked when we have to let some one go for that reason. It has happened twice in the past two years. Both employees were under 25. Banks press charges. Any history of theft precludes further employment with banks. Bank employees frequently are provided personal accounts. They are expected to accurately maintain their accounts. Just one overdraft and the employees account is terminated. The idea being that employees should operate by the same standards customers are expected to uphold.

What is the most valuable skill an employee can bring to your department? (why)
Willingness to learn. Something else which is very important is the ability to express oneself using written and oral communication. In order to serve customers you have to be able to express your thoughts, listen to the customer to find out their needs, and be able to ask probing question. I frequently write lengthy narratives and send letters. I take great care to make sure my writing is accurate and free of errors. Gone are the days when a secretary would compose a letter. It's more efficient if I write my own documents.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Shorthand

What do you foresee to be the "future trends" in your business area?
Banking is undergoing a lot of changes. Many of the changes have been brought on by mergers. Mergers occur when larger corporations by out smaller ones. When a large bank wants to expand into new territory, it's less costly for the larger banks to buy out existing banks than build from scratch. A few years ago, I worked for Bellingham National Bank. Key Bank merged. Most mergers are accompanied by large scale lay off. 20% of the work force was laid off, mainly the back room personnel and mid-management. We lost entire departments because their services were duplicating what the larger corporation already provided, which explains many of the empty desks around my area and in different parts of the bank.

Automation is another factor causing changes in banking practices. 1994 was the first year that automated transactions outnumbered personal transactions. Tellers may be affected most by automation. Today, customers can take care of a lot of their banking needs, paying loans and even bills by phone or automated teller machines. I think the automation trend will continue, but we will always need the person-to-person contact.

Some of the changes in banking practices are a response to increased competition. Many people have an image of a banker sitting in his office waiting for the customer to call. Banking is becoming more and more a sales job. With all the competition we need to bring customers to the bank. Many of the traditional banking jobs have taken on the added responsibility of sales which applies to tellers as well as many of the "back room" people, such as myself, a loan officer.

In the move to become more efficient and serve the customer better bank employees need to be multi-faceted. The Loan Processing Department, for instance, used to have specialized employees who were responsible for one aspect of loan processing. Now the processors are generalists who follow each loan application through the entire process. Employees are more accountable, the process is more efficient, and each employee acquires more skills thereby improving their marketability.

Employee Questions

What do you like most about your job?
Flexibility and variety. In my job I get to talk with people from all walks of life. I call it an educational job because I am always learning. If a cabinet maker or a restaurant owner comes to me for a loan, I need to find out about his business so our bank can make a decision about lending the money. The more I learn about different trades and businesses the better I do my job because the next time I talk with a restaurant owner or cabinet maker, I'll have a greater understanding of what they do.

What do you like least about your job? The paperwork. Even after automation I seem to do just as many reports. Even though I'm not fond of paperwork, the regular (weekly) reporting and the logging of each phone call, helps me keep my focus and set priorities.

How did you choose this particular line of work?
For a long time I wanted to do something with figures and math. Not all my life, though. I was a late bloomer when it comes to math. There was one teacher in eighth grade that turned me around. Prior to that I relied on a tutor in order to pass math classes. In college I considered becoming either a CPA or a Realtor. CPA seemed too impersonal and the prospect of relying entirely on commission, as do Realtors, was a little too frightening. Banking involved figures but along with every figure is a story which lends flesh and substance to the figure.

After I graduated I took a teller job. Most graduates want supervisor positions and will not consider a teller position. Working as a teller gave me a greater understanding of how a bank operates; it gives you a full picture. An opening as a collections officer became available. It didn't sound very appealing but I was told it was a good step toward my overall goal. Collections officer collect defaulted loans. It didn't suit my personality but it was a good learning experience. In 1987 I started doing what I am doing today.

What classes did you take in school that were most helpful?
High School--keyboarding, accounting, business law, and especially Business English. Business English was probably the most relevant course. Also, a solid foundation in basic math (decimals, percents, fractions) is important.

College--accounting, finance, business communications, calculus with business applications, statistics, and economics

What classes have been the least helpful? The classes within my major were all very helpful.

What would be a problem situation that you might face in your daily work? How would you handle it? With every new applicant I've got to decide whether or not our bank will lend money. It is projected that 50 to 60% of all new businesses fail. Most businesses don't even earn a profit until the third year. I look closely at the five C's: character, credit, capacity collateral, and capital. Character and credit are closely related. I can tell a lot about a person's character from the credit report. For instance if they have been delinquent on house or car loans it says a lot. Capacity speaks to the client's ability to take on more debt. Collateral represents the assets the individual can stake to assure payment of the loan. Capital is the amount of money the individual is able to commit to the project.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Maybe I should have paid more attention in my math classes.

Could you describe 3-5 specific skills that you use regularly on your job?

- Communication (verbal and written). It is so important to be able to express direction so that transactions go accordingly.
- I'm very careful about my spelling.
- I use my math skills regularly.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Auto Loan 'Dry Run'

Submitted By: Joe McAuliffe (teacher partner)
Eddy Roddy (business partner)

School: Bellingham High School
Business: Key Bank of Washington

Career Pathway Focus: Business and Marketing
Subject Area: Consumer Education
Suggested Grade Level: 10-12

Category: Credit/Budgeting

Skills Being Applied ***(the workplace application)*****:**

- Allocating Resources
- Acquiring and Evaluating
- Problem Solving
- Interpersonal Skills
- DataDecision Making
- Computing Percentages

WA State Student Learning Goal: #4
Essential Student Learning Element(s):

- Mathematics #5 (makes mathematical connections within mathematics, among disciplines, in real-life situations)
- Mathematics #2 (solves problems using mathematics)
- Communication #3 (applies interpersonal communication strategies & skills to build productive relationships)

Amount of Time Needed to Complete Lesson: 50-100 minutes depending how the work is divided.

Materials Needed:

☐ Automobile Buyer's Guide
☐ Choices software (career information program)
☐ Credit reports
☐ Finance calculator
☐ Budget worksheet
☐ Application forms
☐ Spinner board with pie chart face

Lesson Overview:
Teams of students will undergo a "dry-run" application for an automobile loan. Each team will create (through chance and choice) a credit history for a fictitious person. Then using a buying guide, they'll select an affordable car (hopefully). Mr. Roddy will review their application and credit history and judge which applicant best qualifies.

Directions for Lesson/Activity/Project:
Student are assigned to groups (4-7 students per group). Their objective is to submit an auto loan application that will receive approval by the banker. Each group creates a fictitious loan applicant.

- One member of each team spins the pie graph spinner to determine the educational level of the applicant. The pie graph depicts the percentage of adults who have attained the various levels of education (20% dropped out, 20% graduate from college, etc.).
- Students run *Choices* software (Careerware) to find a career suitable for their applicant's education level.
- Mr. Roddy reads previously prepared credit histories for each applicant, highlighting critical items that may need to be addressed and giving his professional interpretation of the applicants credit history.
- Students pick from *Chance* cards to see what financial fortune or misfortune befalls their applicant.
- Groups develop a monthly budget for their applicant. Some expenditures are predetermined as percentages, others as figures, and some expenses are left for the students' discretion.
- Groups determine the amount available in the monthly budget to devote to a car payment and how much of their savings they can spend for a down payment.
- Mr. Roddy assists students as they peruse the Automobile Buyer's Guide selecting an affordable car.
- Mr. Roddy and I help students compute the monthly payment and down payment on their chosen vehicle.
- Students complete the auto loan application and submit it to Mr. Roddy.
- Mr. Roddy reviews the applications and discusses their merits.

Suggested Assessment:
Students informally evaluate their performance in light of what might have improved their application (refer to the 5 "Cs" of credit) and what were the most favorable elements on their application.

Workplace Applications Informational Interview

Business: Key Bank
Address: 271 H Street -- PO Box 850
Blaine, WA 98231-0850

Contact: Carol A. Barbo
Phone: (360) 676-6144
Date of Visit: Nov. 6, 1995

Management/Human Resources Questions

Answers to the Human Resources questions are the same as for other Key Bank interviews.

First Line Supervisor Questions

Primary products/services:
Banking Services -- Checking, Savings, Loans, Investments.

What kind of person are you looking for? (personal attributes - employability)
- Candidates with cash handling experience.
- People skills (listen, follow directions, people who care about people, committed to community).
- Speaking ability (grammar).

What type of retraining do you do? Key Bank is big on training. Banking skills and people skills are very important. PRIDE = People Really Interested in Delivering Excellence.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Keyboarding, 10-key, Computer, Telephone.

How would you recommend we teach the work ethic to students? Students should have consequences for their actions. Student Accountability. Give honest days work for honest days pay.

What is the one thing you wish we would teach our students? Basic academic skills and strong work ethic.

What is the most valuable skill an employee can bring to your department? (why) People Skills. The other skills are trainable.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Check proofing--centralized service in larger office in larger city.

What do you foresee to be the "future trends" in your business area? Centralization of important paperwork (i.e.: loan processing/documentation).

Employee Questions (Vault Teller/Teller)

What do you like most about your job? The people/clients and the hours are good.

What do you like least about your job? Not enough time to do everything and it must be done by 5:15p.m., and must be done right....stress.

How did you choose this particular line of work? Transition job while attending college--it had good hours.

What classes did you take in school that were most helpful?
Accounting (Vocational Technical College); ran school store.

What classes have been the least helpful? Algebra, Science.

What would be a problem situation that you might face in your daily work? How would you handle it? Angry customers. Get supervisor--next highest level of management is to be contacted.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? I would have paid more attention to my English skills and I would have taken typing/keyboarding every year.

Could you describe 3-5 specific skills that you use regularly on your job?
- Communication
- Math
- Technical skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Banking As a Career/Credit As a Consumer Tool

Submitted By: Carolyn L. Hill (teacher partner)
Carol A. Barbo (business partner)

School: Meridian High School
Business: Key Bank,
Blaine Branch

Career Pathway Focus: Business and Marketing
Subject Area: Family & Consumer Science
Suggested Grade Level: 11/12th grade

Category: Consumer Economics

Skills Being Applied ***(the workplace application):***
- Interpreting data
- Clear, concise writing skills
- Following instructions
- Public relations skills

WA State Student Learning Goal: #3 & #4
Essential Student Learning Element:
- Reading #1 (uses a variety of skills and strategies)
- Communication #2 (listens and views for understanding)
- Communication #3 (applies strategies and skills to build productive relationships)
- Math #1 (understands and applies concepts and procedures of mathematics)

Amount of Time Needed to Complete Lesson: One block class period

Materials Needed:
- ☐ Equipment: Overhead Projector, Transparencies, Pens, White Board
- ☐ Handouts: Tech Prep Lesson Outline
  Dictionary of Credit Terms
  Sample Credit Applications (see your local bank representative)

Lesson Overview:
Lesson is to be team taught by Bank Representative and classroom teacher. The Bank Representative, as the classroom guest and expert is the primary presenter. Students will cooperatively and actively participate throughout the lesson with listening, writing, questions, answers, and dialogue.

Directions for Lesson/Activity/Project:
1. Guest speaker will present information about career opportunities in the banking business, and the expected knowledge and skills for employability.
2. The majority of class time will be spent on the topic of consumer credit -- types available, how to obtain, credit costs, credit rating and history.

3. Students will outline key ideas from the presentation (outlines turned in at the end of the period) -- see attached lesson outline and handouts.
4. Credit information gained from the guest speaker will be used in future lessons as students examine their own "credit worthiness."
5. Bank Representative will serve as a "community resource" to the students during the Consumer Education Unit.

Suggested Assessment:

- Completed Tech Prep Lesson Outline by each student.
- Selected case studies on Credit Use/Abuse throughout the Consumer Education Unit.
- Students will analyze and problem solve in cooperative groups.

TECH PREP LESSON Outline/Worksheet NAME ____________________
Carol Barbo & Carolyn Hill

BANKING AS A CAREER/CREDIT AS A CONSUMER TOOL

I Introduction

A. **Mrs. Carol Barbo-** Assistant Vice President and Manager
KEY Bank, Blaine Office

B. School to Work Opportunities System of Washington State
Whatcom County Tech Prep Consortium,
Business and Education Partnership for Student Learning

II Career Opportunities in Banking Business

A. Entry Level

1.

2.

B. Advanced Level

1.

2.

C. Expected Employability Knowledge/Skills

1. Basic Skills Math, Reading, Communication Written and Verbal

2. Computer Literacy, Keyboarding, 10-Key

3. Cash Handling Experience

4. Organizational Skills and Priortizing

5. Strong Work Ethic

6. People Skills (Brainstorm)

a)

b)

c)

d)

e) PRIDE People Really Interested In Delivering Excellence

III **Why People Use Credit**

A. Brainstorm: Overhead Projector

B. Banker Perspective on Why People Use Credit

IV **Types of Credit**

A.

B.

C.

V **Vocabulary** (Handout Provided)

VI **Obtaining Credit**

A. Sources of Credit - Review of 3 Types of Applications

B. Filling Out a Sample Credit Application (Student Activity)

C. Brief Discussion

D How to Establish Credit

VII **The Cost of Credit** (Sample Credit Statement - Transparency)
Factors affecting Credit Cost

A.

B.

C.

D.

VIII **Credit Rating and Credit History** (List 4 important notes)

A.

B.

C.

D.

IX **Summary and Conclusion: Guidelines for Wise Credit Management** (Write a paragraph summarizing 5 important concepts you learned in this lesson)

Distribute as a handout or reproduce in your newsletter or mailings

A Plain English
DICTIONARY
# of Credit Terms

An Easy-to-Use Guide to Common Terms from American Express Company

A

agreement: Your credit or charge card issuer will send you a cardholder agreement that describes the terms that apply to your card, including the interest rate charged, method of calculating interest and any transaction fees. ✈ If your card issuer refuses to fully disclose the terms of your agreement before you accept the card, you might want to shop around for an issuer that will.

annual fee: Card issuers may charge you a yearly fee in addition to the interest that accumulates when you make purchases. ✈ Depending on how you use your card, a card with no annual fee but a high interest rate could cost you significantly more than one with a higher annual fee and a low interest rate.

Annual Percentage Rate (APR): The APR measures the cost of credit expressed as a yearly interest rate.

average daily balance (including or excluding new purchases): The most common method of calculating interest. To figure out your average daily balance, the bank will add up your daily balances for the billing cycle and divide that number by the number of days in the billing cycle (see billing cycle). New purchases may or may not be added to the balance, depending upon the individual card's terms.

B

billing cycle: The billing cycle is the time between your latest bill and your previous bill.

C

cash advance: You can use your credit card at a bank or an automatic teller machine to get a cash loan. The interest rate for a cash advance may be higher than it is for purchases, and there is usually no grace period. There can also be a handling fee for withdrawing cash in addition to the interest charges, which can raise the cost significantly.

charge card: A charge card, like the American Express Card or the Diners Club Card, requires you to pay your bill in full each month, but charges no interest.

credit bureau: A credit bureau keeps a record of your credit history for any creditor to review when considering your application for credit. They supply this information when you apply for credit.

credit card: A credit card allows you to make partial payments for purchases, but charges interest on the amount owed. You can also pay your balance off in full to avoid interest payments. Visa and Mastercard do not set interest rates and fees, banks and other card issuers do.

credit limit: Your credit limit is the maximum amount you may charge on a credit card without incurring an over-the-limit charge.

credit report: Under the Fair Credit Reporting Act, consumers have the right to see their own credit history. You can request a copy of your credit report from a credit bureau. Your credit report includes a record of any card that you hold, held in the past, or for which you have applied. It also includes the credit limit and your payment history. You are entitled to receive one copy of your credit report free if you have been denied credit within the last 60 days. Otherwise, a small fee may be charged. For a form to order a copy of your credit report, contact: Equifax ($8.00 per copy): 1-800-685-1111; TRW (one free copy per year): 1-800-392-1122; or Trans Union ($8.00 per copy): 1-800-851-2674.

D

deferred payment: Payment put off to a future date or extended over a period of time. ✈ Watch out for "skip-a-month" offers—interest still accumulates.

delinquency assessment: A fee that is charged for a late payment.

dispute: If you think your bill is wrong, write to your card issuer at the address listed on your statement. You must write no later than 60 days after you received the first statement where the error appeared. The credit card issuer must acknowledge your letter within 30 days, and correct the error or explain why they think the statement was correct within two billing cycles (but in no event later than 90 days) after its receipt of your letter. You do not have to pay the amount in question while it is being investigated, but you must pay the rest of your bill.

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F

finance charge: The cost of consumer credit expressed as a dollar amount, including the following types of charges: interest, transaction fees and service fees.

fixed interest rate: An interest rate that remains the same regardless of changes in other interest rates, such as the prime rate (see prime rate).

G

goods and services dispute: If you have a problem with the quality of property or services that you purchased with a credit card, and you have tried in good faith to correct the problem with the merchant, you may have the right not to pay the remaining amount due on the property or services. There are two limitations on this right: 1) You must have made the purchase in your home state, or, if not within your home state, within 100 miles of your current mailing address, and 2) the purchase price must be more than $50.

grace period: The time in which you can pay off all new purchases without incurring finance charges. Typically, if you do not pay off your entire bill, all new purchases begin accruing finance charges immediately.

L

late payment: Most charge and credit card bills list the date by which payments are due. If you miss the due date, the account is considered past due and you may be charged a fee. Your credit report may reflect late payments, and if you routinely pay late, creditors may be dissuaded from granting additional credit.

liability: Liability refers to responsibility for charges on an account. Generally, a cardholder agrees to be liable for any charges to his or her account, including purchases, fees and finance charges. Two people who apply for a card together may both be responsible for the entire balance. Your liability is described in the cardholder agreement you receive from the issuer. Be sure to read it carefully.

O

over-the-limit fee: When you charge more than your credit limit allows, you may be charged an over-the-limit or over-credit-limit fee.

P

past due: When you do not pay at least the minimum payment on time, you are considered past due.

posting date: The date that a purchase or cash advance is recorded on your account. Some companies assess interest from the transaction date (see transaction date), others from the posting date. It is more favorable to assess interest from the posting date, because that may be later, giving you some interest-free days.

prime rate: The interest rate banks charge for loans to their biggest and highest-rated customers, which fluctuates in accordance with the corporate demand for money and with the discount rate the Federal Reserve Bank charges to banks; used as a major economic indicator.

principal: The amount of debt owed before interest charges or fees are included.

R

revolve: To carry over a debt from month to month, paying interest on the amount owed.

T

transaction date: The date a purchase is made or cash is withdrawn. Some companies assess interest from the transaction date, others from the posting date (see posting date.)

transaction fee: A fee that is charged each time certain transactions take place, for example, cash advances.

two-cycle billing method: If you don' pay the entire balance, the finance charge is based on the sum of the average daily balances for both the previous and current months. You are only charged for a two-month time period in the first month you don't pay all the charges. People who sometimes pay all charges but sometimes leave a balance will pay about the same amount under the two-cycle method as with a "no grac period" card.

V

variable interest rate: A variable interest rate is based on fluctuating rates in the banking system, such as the prime rate.

Z

zero balance: If you have no old charges and no new activity, you might not get a bill since you do not owe anything that month. This means that you have a zero balance.

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KEY INVESTMENTS

Business Profile:

Key Investments is a division of KeyCorp Company. KeyCorp is one of the nations largest financial institutions with over $60 billion in assets. Key Investments was brought into service to meet a growing need of regular bank customers to provide investment assistance with non-traditional banking products, service and market information to help customers better plan for their future financial needs.

Key Investments is a specialized group of fully licensed investment specialists who understand financial markets, economic trends and, most important, how those markets and trends can affect an individual clients portfolio.

Key Investments has identified five competencies necessary for success as an employee:

1. **SALES/SERVICE**
    a. Client Service
    b. Product Knowledge
    c. Sales Closing
    d. Need Identification
2. **COMMUNICATION**
    a. Speaks Effectively
    b. Listen to Others
    c. Deliver Effective Presentations
3. **PERSONAL EFFECTIVENESS**
    a. Shows Work Commitment
    b. Drives for Results
    c. Acts with Integrity
4. **INTERPERSONAL**
    a. Building Relationships
    b. Networking
    c. Empowers Others
5. **PROBLEM SOLVING**
    a. Follow-through
    b. Decisive
    c. Decision/Solution Effectiveness

Workplace Applications Informational Interview

Business: Key Investments
Address: 101 East Holly St.
Bellingham, WA 98225

Contact: Dick Zagelow
Phone: (360) 676-6156
Date of Visit: Oct. 27, 1995

Management/Human Resources Questions

Answers to the Human Resources questions are the same as for other Key Bank interviews.

First Line Supervisor Questions

Primary products/services:
- Investment services
- Stocks, bonds, mutual funds

What kind of person are you looking for? Dedicated and able to work well with people; willing to put forth 110%.

What type of retraining do you do? Technical and basic skills.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Basic computer skills.

How would you recommend we teach the work ethic to students? By example--make students aware of what it means and why it is so important to a work environment.

What is the one thing you wish we would teach our students? Work ethic, computer skills, people skills, and writing skills.

What is the most valuable skill an employee can bring to your department? The ability to work with other people.

Employee Questions

What do you like most about your job? Working with people.

What do you like least about your job? Paperwork.

How did you choose this particular line of work? I was recruited.

What classes did you take in school that were most helpful? English.

What classes have been the least helpful? Physical Education.

What would be a problem situation that you might face in your daily work? How would you handle it? Clients who are unhappy with recommended investment. Review long term investment objectives.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Computer technology.

Could you describe 3-5 specific skills that you use regularly on your job?

- Writing
- Math
- Verbal communications

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Investment Banking - Buying and Selling Stocks

Submitted By: Bill Brouwer (teacher partner)
Dick Zagelow (business partner)

School: Lynden Christian High School
Business: Key Bank Investments

Career Pathway Focus: Business and Marketing
Subject Area: Economics, Business, Social Studies
Suggested Grade Level: 11-12th grade

Category: Economics/Stocks

Skills Being Applied ***(the workplace application)*****:**
Technical writing and reading, critical thinking, problem solving, interpreting data, graphing, estimating, clear and concise writing skills, analyzing process, computer skills, public relations skills, self-directness, data collection and analysis, maintaining files, networking, flexibility, organization, creativity, and persistence.

WA State Student Learning Goal: # 4
Essential Student Learning Element(s):

- Communication #2 (listens and views for understanding)
- Mathematics #5 (makes mathematical connections within mathematics, among disciplines, in real-life situations)

Amount of Time Needed to Complete Lesson: two class periods plus periodic updates

Materials Needed:

- ☐ Access to Wall Street Journal or on-line stock quotes
- ☐ Computer with on-line capabilities would be helpful but not absolutely essential
- ☐ Graph paper

Lesson Overview:
Working for Key Bank Investments requires strong communication skills because the employee needs to be able to carefully explain the implications of making specific investments. Math skills are critical to being able to accurately predict and compute the costs involved in investing, as well as having a working knowledge of computer application skills.

Directions for Lesson/Activity/Project:
The teacher needs to arrange for a guest speaker (a local investment broker or banker) that will spend one day teaching the basic skills, education, qualities, job description, and routines of a broker. The lesson must incorporate technical skills, thinking skills, writing skills, analytical skills, and personal (people) skills needed to be a broker. The second day should be spent teaching how stocks and bonds are bought and sold and setting up fictional stock purchases by the students to be monitored throughout the course.

The guest speaker (an investment banker or an account executive of an investment firm) will present a lesson with two parts...

Day One: Information to be presented by the guest speaker

A. Skills and education needed to be an investment executive (skills listed above)
B. Qualities needed to succeed in the investment business (work ethic, flexibility, communication skills, networking, organization, creativity, persistence)
C. Job description of an investment broker
D. Daily routines of an investment executive
E. How to buy and sell stocks/bonds (use on-line service to show steps)
F. Analysis of present stock/bond trends (use of books published by Moodys, Barrons, Standard and Poor, etc.)

Day Two: Playing a stockmarket game

A. Each student will buy six stocks with a theoretical $60,000.
B. Brokers fees must be calculated.
C. Each stock needs to be graphed.
D. A few minutes each week should be dedicated to updating the stocks and graphing accordingly. Also, stocks could be bought and sold during this time.
E. At the end of the course, the stocks should be sold, fees calculated and subtracted, the final profits and losses calculated, and a final graph of each stock submitted.

A prize might be offered for the person that gained the most profits.

Suggested Assessment:
Students will be asked to:

1. Write a one-two page paper on the topic: What does it take to be a stock broker/ investment account executive?
2. Graph six stocks for the balance of the course and calculate profits and losses plus any fees involved.

HEALTH, EDUCATION & HUMAN SERVICES

TECH PREP

CAREER PATHWAYS

Home Port

Business Profile:

Home Port is a school for a select number of teenagers who are in the juvenile justice system and are unable to function in one of the regular Whatcom county schools. The school has four faculty members and is able to accommodate 16 students during a session. The program and curriculum is structured to be application-based, and hands-on where the students "learn-by-doing." Student progress is evaluated through student portfolios. Students work at a number of projects--many of them related to building boats. While working on the projects, the students are learning about and applying science, math, writing, reading, and communication skills. They are encouraged to work in a team environment where they practice their interpersonal communication skills.

Workplace Applications Informational Interview

Business: Juvenile Justice
Address: County Courthouse - 311 Grand St.
Bellingham, WA 98225

Contact: Kathy Dwyer, Director - Home P
Phone: (360) 676-6780
Date of Visit: Nov. 2, 1995

Management/Human Resources Questions

Primary products/services: Educational services for juveniles who have been remanded through the courts to the "Juvenile Justice System" in Whatcom county.

Note: The standard business interview questions used for this project did not apply to my "business" site visit. I spent most of the day at the school, *Home Port*, and focused on the alternative education that was taking place there. I spent very little time exploring the juvenile justice system and work related to the legal system.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Giving Specific Directions

Submitted By: Fred Ypma (teacher partner)
Kathy Dwyer (business partner)

School: Lynden Christian High School
Business: Home Port School

Career Pathway Focus: Health, Education & Human Services
Subject Area: English
Suggested Grade Level: 11-12

Category: Applied Communications

Skills Being Applied ***(the workplace application)*****:**
- Communications skills
- Giving good directions and following step-by-step instructions

WA State Student Learning Goal: #1
Essential Student Learning Element(s):
- Writing #4 (student writes with a variety of tools and technologies)
- Writing #5 (student writes as a member of a team)
- Communication #4 (student makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: Five class periods/school days

Materials Needed:
- ☐ Video camera
- ☐ Desk top publishing system
- ☐ Word processors
- ☐ Art materials to draw diagrams/illustrations

Lesson Overview:
The students shall be able to write/produce directions to accomplish a multi-step task and be able to follow directions given by someone else to complete a step-by-step task.

In a business environment, employees must be able to quickly and efficiently follow a given set of directions. Often times a supervisor will orally provide instructions on how to complete a multi-step task, and the employee is expected to listen carefully, ask appropriate questions, then complete the task according to the directions given. Problem solving is often a key part of completing the assigned task.

Directions for Lesson/Activity/Project:
1. The students will form teams of two or three.
2. They will select a task which takes several steps to accomplish...how to do a multi-step task that you know how to do while others do not. For example:

- how to program a VCR
- how to develop negatives in a dark room
- how to shoot a free throw correctly
- how to take a plant cutting from a rhododendron
- how to scan a photo and enhance its quality in Photoshop
- how to set up volleyball standards for intramurals
- how to create an "attractive page" using Pagemaker

3. Write directions so that someone else can complete the task.
4. Plan the best way to communicate these directions (video, brochure, paper list, etc.).
5. Produce directions so that someone else can follow them and finish the task.
6. Trade instructions so that team members get the opportunity to evaluate the instructions from the other teams.
7. Evaluate the quality of the other team's directions.

***Day 1*: Planning**

A. Form working teams of two or three students.

B. Decide on task for which students want to produce directions.

***Day 2*: Begin to write directions**

***Day 3*: Production decisions**

A. Decide on best way to communicate these directions/steps in order to accomplish the desired task. Would a video be the best way to communicate? Would a pamphlet with illustrations and or graphics be the best? Would a sheet of written instructions be the best? Is there another alternative?

B. Begin production of directions.

***Day 4*: Finish production of directions for accomplishing task**

***Day 5*: Assessment**

A. Teams will rotate to various work stations, follow the directions and see if they are able to accomplish the multi-step task.

B. Teams will rate other teams in clarity of instructions and ease of being able to do the task.

Suggested Assessment:

Students will be asked to:

1. Make several of the other teams follow given instructions to complete required multi-step task.
2. Write written evaluation of instructions of others describing which instructions were clear/unclear and what was best part of the instructional package.

Ferndale Police Department

Business Profile:

The Ferndale Police Department is a municipally-operated organization comprised of eleven commissioned officers, one animal control officer and an administrative assistant records manager. These individuals work as a team to maintain law and order in the rural community of Ferndale, Washington. They offer various community services including the Dare Program and work closely with the Ferndale School District to assure a safe learning environment for students.

The staff employed at the Ferndale Police Department are skilled in using firearms, radar and radio equipment, restraining devices and various analytical testing tools, such as the PBT (Portable Breath Tester), the BAC (Breath Alcohol Content) and NIK (Narcoband Identifying Kits). Officer applicants must compete in five tests: physical agility, written, oral, physical health and polygraph to even be considered for employment. Once hired, officers are trained at a state academy for 3 months and all officers usually experience 40 hours of additional training every year. Successful officers are confident, honest, realistic individuals having a variety of life experiences with a strong sense of moral and ethical values. Skills and knowledge in psychology, communication and critical thinking are essential.

Workplace Applications Informational Interview

Business: Ferndale Police Department
Address: PO Box 1257
Ferndale, WA 98248

Contact: Dale Baker
Phone: (360) 384-3390
Date of Visit: Oct. 18, 1995

* * *

Management/Human Resources Questions

Primary products/services: Maintain law and order.

What kind of person are you looking for? (personal attributes - employability)
- Flexible
- Intelligent, having military experience
- College
- Good hygiene
- Variety of experiences

How do you announce employment opening/recruitment notices?
The yearly testing sequence is announced in the newspapers and police training bulletin.

What type of interviewing do you do? There is an initial interview then a series of five tests (physical agility, written, oral, health/physical, and polygraph). Further interviews may follow.

What are your most common reasons for terminating an employee?
Any misconduct can result in termination such as: lying, insubordination, or commitment of a felony.

What are the occupation titles within your workforce?

Chief of Police
Patrol Officer
Administrative Assistant
Lieutenant
Animal Control Officer
Records Manager

What type of retraining do you do? Every year 40 hours of training is recommended.

What percentage of your workforce has a four year degree? 36%; 2 year degree? 55%; High School diploma only? 9%; Not high school graduates? 0%

First Line Supervisor Questions

Primary products/services: Maintain law and order

What kind of person are you looking for? A person with leadership abilities and technical skills.

What type of special equipment is used here that you expect all (or most) employees to be proficient at using? Special equipment includes: fire arms, batons, hog tie ropes, handcuffs, restraints, radar/radio equipment, and PBT and BAC devices.

How would you recommend we teach the work ethic to students?
Emphasize coming to school on time, being productive while there, taking appropriate breaks and using sick leave appropriately.

What is the one thing you wish we would teach our students? It would be valuable for students to know if they are qualified or suited for the occupations they are interested in.

What is the most valuable skill an employee can bring to your department? Honesty and confidence are most important. Honesty provides a way to learn from mistakes. Confidence assures that the officer will not be easily intimidated.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? It is important to teach the full aspect of a concept. Knowing only one side of an issue creates an inaccurate picture of the world.

What do you foresee to be the "future trends" in your business area? The community of Ferndale will grow in numbers creating a need for a larger police force.

Employee Questions (DARE Officer - 20 years on the job)

What do you like most about your job? Working with and helping people.

What do you like least about your job? Being a public figure and not having a private life is difficult. There is always pressure to be at your best.

How did you choose this particular line of work? Having a military background encouraged me to pursue police work.

What classes did you take in school that were most helpful? Psychology and speech.

What classes have been the least helpful? I've been able to find a useful application for every class I've taken.

What would be a problem situation that you might face in your daily work? How would you handle it? The most difficult situations deal with at risk kids having family problems. I must rely on experience and communication skills to most effectively deal with these situations.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Paying attention to local history and basic English skills would have been most valuable.

Could you describe 3-5 specific skills that you use regularly on your job?

- English - report writing, grammar, sentence and paragraph structure and spelling
- Communication
- Psychology - human behavior and response

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Scientific Process Solves Traffic Accident Mystery

Submitted by: Angie Zehnder (teacher partner)
Dale Baker (business partner)

School: Ferndale High School
Business: Ferndale Police Department

Career Pathway Focus: Health and Human Services
Subject Area: Science
Category: Science (all disciplines)
Suggested Grade Level: 9-12

Skills Being Applied ***(the workplace application):***
- Technical reading and writing
- Observation
- Data collection and analysis
- Critical thinking/problem solving

WA State Student Learning Goal: Goals # 1,2,3,4
Essential Student Learning Element(s):
- ♦ Science #1 (understand and apply scientific concepts and principles)
- ♦ Math #1 (understands & applies the concepts & procedures of mathematics)
- ♦ Math #2 (solves problems using mathematics)
- ♦ Math #3 (uses mathematical reasoning)

Amount of Time Needed to Complete Lesson: 50 minutes

Materials Needed:
- ☐ Metric ruler
- ☐ Traffic accident worksheet
- ☐ Driver worksheet
- ☐ Accident report form
- ☐ Science report form

Lesson Overview:
Any field of law enforcement relies on the ability to collect and interpret information to solve problems. In this lesson students will collect information (data) from a traffic accident in order to decide which driver is at fault.

Directions for Lesson/Activity/Project:
Opening Discussion
- Establish the point that there are many skills and concepts learned in science classes that can be applied in many different careers.
- Brainstorm with the class regarding what skills and concepts might be used in the various fields of law enforcement.

Activity Introduction - Points to Establish:

- Police officers must collect data and information, interpret it and write a report for the purpose of combat crime to maintain law and order.
- Their decisions affect lives in a major way. They must rely on scientific process to assure accurate conclusions.

Presentation of Activity

- The activity you will do involves a traffic accident. Your problem is to determine which driver is responsible. The decision is crucial because not only does it affect whose insurance will have to cover the cost of all the damage and/or injuries, but this accident will become part of the driver's record which directly affects their insurance coverage premiums.
- The job of the groups is to collect information and accurately apply it to the problem. Even information that appears irrelevant could be used by lawyers later to establish unique circumstances, so don't leave out any information. You will be provided with a picture of the accident, a picture of the drivers, a traffic report form and a science report form. Only the science report form is to be turned in to your acting Police Chief (teacher).

Closure

- Have each group discuss with the class which driver was responsible and why.
- Share your assessment of the accident.
- Collect the science report form from each group.

Suggested Assessment:

Evaluate the science report form for accuracy and detail. There are many different interpretations based on the sketch of the accident. As long as they support their interpretation with evidence, it is acceptable. No final answer can be derived from the sketch. Not enough information is clear. This was helpful in establishing good discussion and emphasizing the need to collect accurate data.

Acknowledgments:

Dale Baker (Police Chief, Ferndale) -- Provided students with his expertise in traffic law & a traffic report form to use with this class assignment.
Terry Fitzgerald (Art Teacher, FHS) -- Provided students with his experience in contracted art work (accident scenes, police sketches, etc.).
Bryan Cox (art student, FHS) -- Provided sketch of traffic accident.
Matt Rohrbach (art student, FHS) -- Provided sketch of drivers.

Science Report Form

Officers on the scene: **(Names of your group members)**

Problem:

Hypothesis:

Results: **(Use the Traffic Report Form to help you collect information)**

Conclusion:

UP
2 WET
3 SNOW
[illegible]
4 OTHER ✱

WEATHER

1 CLEAR, CLOUDY & OVERCAST
2 RAINING
3 SNOWING
4 FOG
5 OTHER ✱

LIGHT CONDITIONS

1 DAYLIGHT
2 DAWN
3 DUSK
4 DARK STREET LIGHTS ON
5 DARK - STREET LIGHTS OFF
6 DARK NO STREET LIGHTS
7 OTHER ✱

TRAFFIC CONTROL

① ②

1 SIGNALS
2 STOP SIGN
3 YIELD SIGN
4 FLASHING RED
5 FLASHING AMBER
6 RR SIGNAL
7 OFFICER/FLAGMAN
8 OTHER TRAFFIC CONTROL ✱
9 NO TRAFFIC CONTROL

TYPE OF ROADWAY

① ②

1 ONE WAY
2 TWO WAY
3 REVERSIBLE ROAD
4 INTERCHANGE LOOP ROAD
5 ALLEY
6 CENTER LANE TWO WAY LEFT TURN LANES
7 DRIVEWAY

ROADWAY STRUCTURE

1 OCCURRED ON ROADWAY STRUCTURE (ON BRIDGE, OVERPASS, DOCK, ETC.)
2 DID NOT OCCUR ON STRUCTURE

CONSTRUCTION AREA

1 OCCURRED IN CONSTRUCTION AREA (HIGHWAY, UTILITY, ETC.)
2 DID NOT OCCUR IN CONSTRUCTION AREA

ROADWAY CHARACTER

1 STRAIGHT & LEVEL
2 STRAIGHT & GRADE
3 STRAIGHT AT HILLCREST
4 STRAIGHT IN SAG
5 CURVE & LEVEL
6 CURVE & GRADE
7 CURVE AT HILLCREST
8 CURVE IN SAG

ROADWAY SEPARATION

① ②

2 DIVIDED
3 UNDIVIDED

ROADWAY SURFACE TYPE

① ②

1 CONCRETE
2 BLACKTOP
3 BRICK OR WOOD BLOCK
4 GRAVEL
5 DIRT
6 OTHER ✱
0 UNKNOWN

SPECIAL HAZARDOUS DRIVING CONDITIONS

(DUST, WIND GUSTS, SMOKE, ETC.) ✱

CHECK (✓) HERE AND EXPLAIN IN DESCRIPTION AREA

HAZARDOUS MATERIALS BEING TRANSPORTED

(IDENTIFY IN DESCRIPTION AREA)

① ②

1 FLAMMABLE LIQUID
2 CORROSIVE MATERIAL
3 EXPLOSIVES
4 RADIO ACTIVE MATERIALS
5 AMMONIA
6 CHLORINE
7 OTHER ✱

PEDESTRIAN/PEDALCYCLIST WAS USING:

1 SIDEWALK
2 WALKWAY
3 SHOULDER
4 MARKED XWALK
5 UNMARKED XWALK
6 OTHER ✱
7 DESIGNATED BIKE ROUTE

PEDESTRIAN/PEDALCYCLIST CLOTHING COLOR

1 DARK
2 LIGHT
3 MIXED
4 RETRO-REFLECTIVE
5 OTHER REFLECTIVE APPAREL - SHOES - PATCHES ✱

PEDESTRIAN/PEDALCYCLIST

(CONTRIBUTING CIRCUMSTANCES)

1 INTOXICATED
2 DISREGARDED TRAFFIC CONTROLS
3 FAILURE TO YIELD RIGHT OF WAY TO VEHICLE
4 INATTENTION
5 ON WRONG SIDE OF ROAD
8 HITCHHIKING
9 PEDALCYCLE NOT LIGHTED
0 FAILURE TO USE XWALK

UP ALCOHOL
2 UNDER INFLUENCE OF DRUGS
3 EXCEEDING STATED SPEED LIMIT
4 EXCEEDING REAS SAFE SPEED
5 DID NOT GRANT R/W TO VEHICLE
6 IMPROPER PASSING
7 FOLLOWING TOO CLOSELY
8 OVER CENTER LINE
SIGNAL
10 IMPROPER TURN
11 DISREGARD STOP & GO LIGHT
12 DISREGARD STOP SIGN/SIGNAL
13 DISREGARD WARN SIGN/SIGNAL
14 APPARENTLY ASLEEP
15 IMPROPER PARKING LOCATION
16 OPERATING DEFECTIVE EQUIP
[illegible]
18 NONE
19 IMPROPER SIGNAL
20 IMPROPER "U" TURN
21 LIGHT VIOLATION NO LIGHTS, FAIL TO DIM
22 DID NOT GRANT R/W TO PEDESTRIAN
23 DRIVER INATTENTION
24 IMPROPER BACKING

DRIVER/VEHICLE ACTIONS (ONE OR MORE)

1 GOING STRAIGHT AHEAD
2 OVERTAKING AND PASSING
3 MAKING RIGHT TURN
4 MAKING LEFT TURN
5 MAKING U TURN
6 SLOWING
7 STOPPED FOR TRAFFIC
8 STOPPED AT SIGNAL OR STOP SIGN
9 STOPPED IN ROADWAY
10 STARTING IN TRAFFIC LANE
11 STARTING FROM PARKED POSITION
12 MERGING (ENTERING TRAFFIC)
13 LEGALLY PARKED OCCUPIED
14 LEGALLY PARKED UNOCCUPIED
15 BACKING
16 GOING WRONG WAY ON DIVIDED HIGHWAY
17 GOING WRONG WAY ON RAMP
18 GOING WRONG WAY ON ONE WAY ST OR RD
19 OTHER ✱
20 CHANGING LANES
21 ILLEGALLY PARKED OCCUPIED
22 ILLEGALLY PARKED UNOCCUPIED

VEHICLE CONDITION (ONE OR MORE)

1 DEFECTIVE BRAKES
2 DEFECTIVE HEAD LIGHTS
3 DEFECTIVE REAR LIGHTS
4 TIRES WORN OR SMOOTH
5 TIRES PUNCTURED OR BLOWN
6 LOST A WHEEL
7 DEFECTIVE STEER. MECH.
8 POWER FAILURE
9 HEADLIGHTS GLARING
10 OTHER LIGHTS/REFLECTORS INSUFFICIENT
11 OTHER DEFECTS ✱
12 NO DEFECTS
13 MOTORCYCLE-LIGHTS OFF
14 EQUIPPED WITH STUDDED TIRES
15 MOTORCYCLE WINDSHIELD INSTALLED
16 TRUCK/TRAILER SAFETY INSPECTION

BEST COPY AVAILABLE

STATE OF WASHINGTON

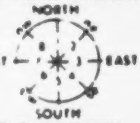
POLICE TRAFFIC COLLISION REPORT

WSP 150 (REV. 3/87)

① UNIT NO. 1
② UNIT NO. 2 (VEH., PED., BIKE)
✱ DESCRIBE IN THE COLLISION DESCRIPTION AREA
+ CODES DESCRIBED BELOW
SEE REVERSE SIDE FOR INSTRUCTIONS

DIRECTION OF MOVEMENT

(INDICATE BY NUMBER THE FROM AND TO MOVEMENT)



9 VEHICLE STOPPED
0 VEHICLE BACKING

POSTED SPEED

MILES PER HOUR FOR EACH VEHICLE INVOLVED.

SOBRIETY

1 HBD ABILITY IMPAIRED
2 HBD ABILITY NOT IMPAIRED
3 HBD SOBRIETY UNKNOWN
4 HAD NOT BEEN DRINKING

CHEMICAL TEST

98 TEST GIVEN
99 TEST REFUSED

TEST RESULTS

LIST ACTUAL TEST RESULTS IN 100ths

VEHICLE LEGALLY STANDING

1 YES
2 NO

PEDESTRIAN ACTION

1 XING AT INT W/SIG
2 XING AT INT AGST SIG
3 XING AT INT NO SIG
4 XING AT INT DIAG
5 FROM BEHIND PARKED VEH
6 XING NON INT NO XWALK
7 XING NON INT IN XWALK
8 WALK'G IN RDWY W/TRAF
9 WALK'G IN RDWY OPP TRAF
10 WALK'G ON RDWY SHLDR WITH TRAFFIC
11 WALK'G ON RDWY SHLDR OPPOSITE TRAFFIC
12 STANDING OR WORKING IN ROADWAY
13 PUSH'G OR WORK'G ON VEH
14 PLAY'G IN ROADWAY
15 LYING IN ROADWAY
16 NOT IN ROADWAY
17 ALL OTHER ACTIONS ✱
18 FELL OR PUSHED INTO PATH OF VEHICLE

PEDALCYCLIST ACTION

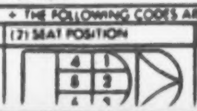
43 XING DIAGONALLY
44 RIDING WITH TRAFFIC
45 RIDING AGAINST TRAFFIC
46 FELL OR PUSHED INTO PATH OF VEHICLE
47 CYCLIST TURNED INTO PATH OF VEHICLE - SAME DIRECTION
48 CYCLIST TURNED INTO PATH OF VEHICLE - OPPOSITE DIRECTION
49 ALL OTHER ACTIONS ✱
50 XING OR ENTERING TRAFFICWAY

173

+ THE FOLLOWING CODES ARE USED TO DESCRIBE THE DRIVER, OCCUPANT, INJURY CLASS, RESTRAINT SYSTEM, EJECTION AND MOTORCYCLE SAFETY DATA

(1) STATUS
2 PASSENGER
3 PEDESTRIAN
4 BICYCLIST
5 OTHER

(2) SEAT POSITION

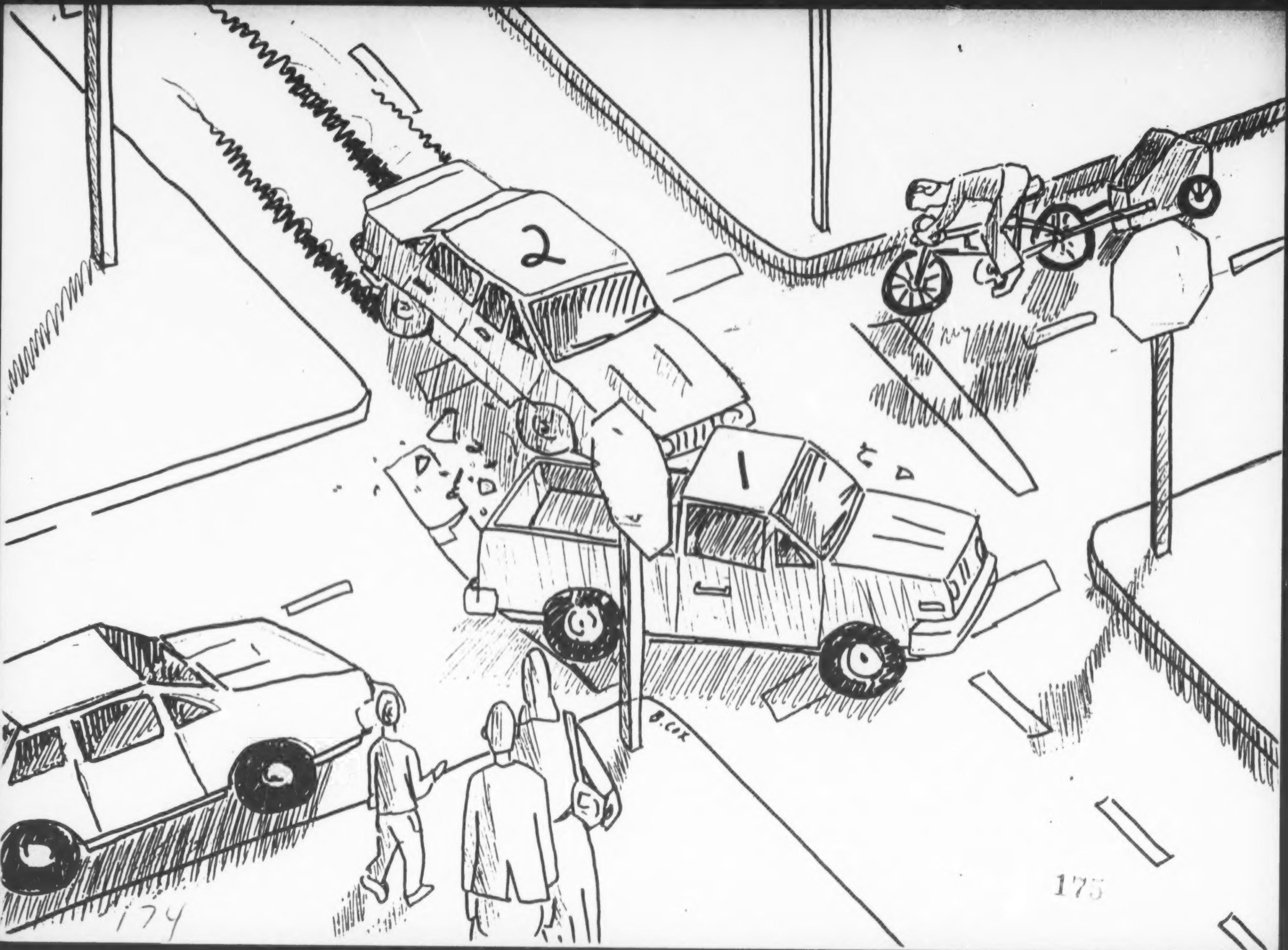


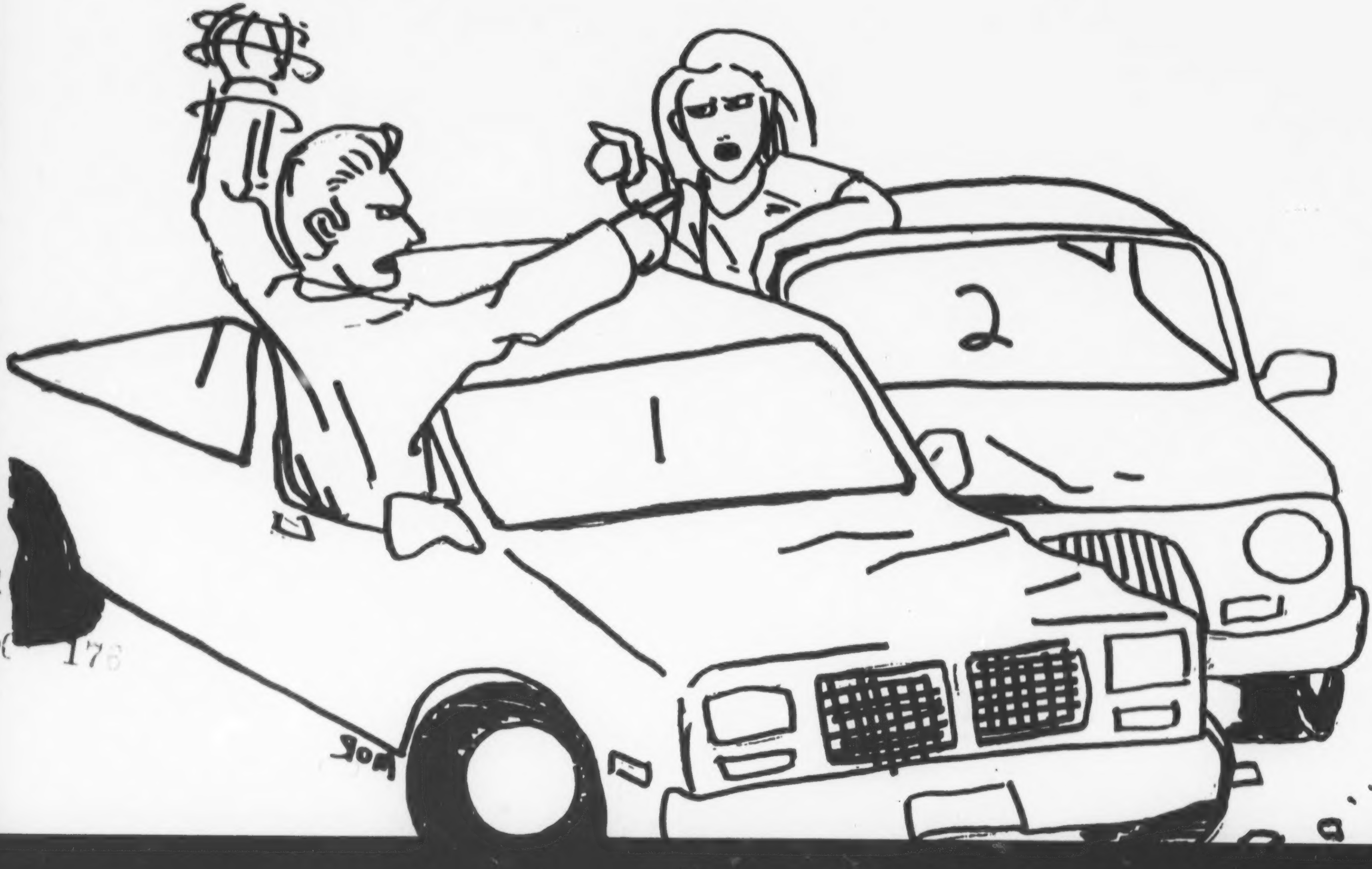
(3) INJURY CLASS
1 NO INJURY
2 DEAD AT SCENE
3 DEAD ON ARRIVAL
4 DIED IN HOSPITAL
5 DISABLING INJURY

(4) RESTRAINT SYSTEMS
1 NO RESTRAINTS USED
2 LAP BELT USED
3 SHOULDER BELT USED
4 LAP & SHOULDER BELT USED
5 CHILD RESTRAINT USED
7 NON ACTIVATED AIR BAG NO BELTS USED
8 AIR BAG ACTIVATED BELTS IN USE
9 AIR BAG ACTIVATED

(5) EJECTION
1 NOT EJECTED
2 TOTALLY EJECTED
3 PARTIALLY EJECTED
4 UNKNOWN IF EJECTED

(6) MOTORCY
0 NOT SI
1 HELMET
2 HELMET


2
1
B. COX
174
175


2
1

Department of Social and Health Services

Business Profile:

The Department of Social and Health Service's main objective is to improve the quality of life for individuals and families in need by providing them with the appropriate social, health and financial services. Several different programs fall under the umbrella of DSHS. The *Office of Emergency and Medical Field Services* is one of them. This office oversees Financial Grants, Food Stamps, Medical Coupons and Job Services. DSHS delivers services that recognize individual and cultural differences. DSHS strives to help people achieve safe, healthy, self sufficient and secure lives.

During the 1994-95 federal fiscal year, the *Office of Emergency and Medical Field Services* in Whatcom county served:

- Aid for Dependent Children (AFDC) of single parents - 4,612 individuals
- Aid for Dependent Children of 2 parents - 1,384 individuals
- General Assistance Unemployable (GAU) single with no children - 601 individuals
- Refugee Assistance - 21 families
- Individuals receiving food stamps - 11,538

Statewide, DSHS employs approximately 16,000 staff members on a full time basis. It is Washington State's sixth largest employer. Locally, DSHS has about 76 employees in its *Emergency and Medical Field Services* division on the Guide Meridian in Bellingham. Overall responsibility for departmental administration belongs to the Secretary, who is appointed by the Governor.

Career opportunities include professional and para-professional positions as well as office and clerical positions. DSHS seeks to establish an organizational climate that encourages creative leadership, teamwork, integrity, accountability and excellence for all employees.

Workplace Applications Informational Interview

Business: Department of Social and Health Services
Address: 4101 Meridian
Bellingham, WA 98225

Contact: Greta Kaas-Lent
Phone: (360) 647-3009
Date of Visit: Oct. 30, 1995

* * *

Management/Human Resources Questions

Primary products/services: Providing the public with financial and social services assistance.

What kind of person are you looking for? (personal attributes - employability)
- Caring attitude without enabling; passion for seeing people empowered.
- Minimum qualifications as designated by the position.
- Positive attitude, self-motivated.
- Team-player.
- Helps others when finished with own duties.

How do you announce employment opening/recruitment notices?
Post announcements in reception area of DSHS, post on bulletin boards at DSHS, list with Employment Security.

What kind of pre-screening do you do? (education/experience/other)
- Appropriate scores on official tests.
- Consistency of experience.
- References and previous employers are called.

What type of interviewing do you do? Both one-on-one and team interviews are used.

What are your most common reasons for terminating an employee?
It doesn't happen very often; there is a process that is followed prior to dismissal. Personal conduct reports are filed and disciplinary actions are taken for the following: too many personal phone calls, unauthorized long-distance calls, inappropriate comments to employees and clients, hitting another employee. Fraud and theft are also cause for dismissal.

What are the occupation titles within your workforce?

Social Worker
Specialist and Clerk
Office Administrator
Financial Service
Mail Machine Operator
Human Resource Assistant 2

What type of retraining do you do?
We get Labor and Industry clients who are in need of retraining services. RIF rights.

What percentage of your workforce has a four year degree? All social workers; 2 year degree? Several workers; High school diploma only? Required by entry level positions; Not high school graduates? one.

What kind of accommodations do you make for people with disabilities?
There is a reasonable accommodation policy; we try to find a place where the person will fit in.

What is the role of employee organizations/unions in your company?
Optional union membership.

What are the skills needed in five years? (workforce of the future)
Will need more financial workers, receptionists and social workers and fewer clerical workers. More computers skills and more work out in community interfacing with other agencies will be required. Low level entry jobs are being eliminated.

First Line Supervisor Questions

Primary products/services: Facilitates primary services.

What kind of person are you looking for? (personal attributes - employability)
Positive attitude, hard-working.

What type of retraining do you do? Workshops and inservices.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Computers.

How would you recommend we teach the work ethic to students?
Encouragement. Without a good work ethic, you will be lost. Trouble shoot in group settings. Require appropriate attire (dress for work) -- no sexist, racist or other inappropriate messages on clothing. Peer pressure. Encourage volunteerism and work experience.

What is the one thing you wish we would teach our students?
Work ethic and consequences for behavior. How to write resumes. Interpersonal skills for use in meetings and working in teams.

What is the most valuable skill an employee can bring to your department?
A positive attitude, because then you can learn almost any job and get along with almost anybody.

What processes have become obsolete in the last couple of years? What do we no longer need to teach?
Manual tracking systems and memos. Also, government and computer programs both are constantly changing, some becoming obsolete.

What do you foresee to be the "future trends" in your business area? E-mail and telecommuting.

Employee Questions

(Clerk 3, RFIS Worker, Receptionist, Social Worker 2 -- 9 months to several years on the job)

What do you like most about your job?
Busy - always on the go. Meeting so many kinds of people. Being able to help others. Get to have many experiences through the clients. The variety. Talking with people; likes client contact.

What do you like least about your job?
It's never finished. Policing roles -- monitoring others. The rules, laws and regulations -- so many things that have to be done are unrelated to eligibility. Not enough time to the job with all the new

demands. Working in bureaucracy with minimal resources, struggling for funds, where programs are changing and there are so many needy clients -- leads to burnout. Difficult to keep up with all the programs and what kind of criteria each contain.

How did you choose this particular line of work?
There was an open position. Comes from social work background. The worker for food stamps suggested applying for a job with DSHS. Volunteering here led to a paid position (workers help volunteers prepare for job openings).

What classes did you take in school that were most helpful?
Keyboarding has helped a little. But otherwise nothing. Adult Development classes. Aging classes where processes of the life cycle were studied. Nothing prior this job. Experience running own business. Being a Vista volunteer. On going trainings have been helpful. Normal high school classes. Bilingual training. Geography classes.

What classes have been the least helpful? The academic ones.

What would be a problem situation that you might face in your daily work? How would you handle it?
Not being able to find a record -- and having other workers pressure you (trouble-shoot). Organizing for the day (set priorities). Difficult people to deal with in the office -- families in conflict and fighting/ disgruntled Vietnam vets/ armed clients (uses people and interviewing skills and sometimes has to turn in clients for suspected abuse based on behavior in the office). Rules, regulations and the computer get in the way of dealing with human beings -- computer interferes with interviewing style (people skills of making client feel comfortable, humor). Tense situations that are difficult to defuse (combination of things, especially skills learned in workshops like 'how to deal with difficult people' and alcohol intervention skills).

Knowing what you know now, what do you wish you would have paid attention to while you were still in school?
That post secondary schooling had been pursued sooner. Interviewing skills: how to read people; how to ask the same question many different ways; how to read body language.

Could you describe 3-5 specific skills that you use regularly on your job?
Ten-key, ability to get along with people, memorizing, alphabetizing related to filing skills, communication skills. Organization, communication, prioritization, team building /motivational and counseling skills. Interviewing/interpersonal skills, word processing/data entry skills, telephone skills, translator skills. Dealing with changing rules. Need to know the many regulations and information to make decisions -- and have the ability to keep up with all the changes therein. The ability to access information from many sources. How and when to disperse information to clients and co-workers. How to handle multiple tasks. Dealing with information that doesn't fit into prearranged slots/forms. Dealing with difficult/troubled/diverse populations of people. Creative problem solving skills. Active listening skills. Need open mindedness/tolerance. Establishing trust with clients.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Working as a Team to Acquire and Evaluate Information to Make Decisions

Submitted By: Marcia Leister (teacher partner)
Greta Kaas-Lent (business partner)

School: Bellingham Technical College
Business: Department of Social & Health Services

Career Pathway Focus: Health & Human Services
Subject Area: SCANS Competencies
Suggested Grade Level: Adult Basic Education

Category: Interpersonal Skills

Skills Being Applied ***(the workplace application)*****:**
- Working on teams to solve problems.
- Evaluate information to reach decisions.

WA State Student Learning Goal: #3
Essential Student Learning Element(s):
- Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)
- Communication #4 (makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: 2.5 hours

Materials Needed:
- ☐ Handouts
- ☐ Pencils
- ☐ Separate tables for groups
- ☐ Optional-- video camera to tape lesson

Lesson Overview:
The *Department of Social and Health Services* is a complicated organization designed to serve clients with varying needs. Employees working in the various stations play essential roles in serving clients. It is important for DSHS employees to be able to work as a team, communicating often to combine the various services appropriate in developing a *complete* services plan for their client(s).

Directions for Lesson/Activity/Project:
Opening Discussion...
- What do you know about teamwork? What is teamwork?
- Have you ever worked as part of a team?

- What is consensus? Why is it an important "team" concept?
- Discuss handout on consensus.

Group Activities...

1st group activity: What Needs to Happen First?

- Individually prioritize a list of typical employee-related problems.
- Then divide into groups to reach a group consensus on the prioritization of the problems.
- Discuss activity afterwards (debrief).

2nd group activity: Determining eligibility at DSHS

- Use teamwork skills to evaluate information and make a decision using a typical DSHS problem situation.
- Form teams. Review, evaluate and organize data to determine eligibility of a family using information from a phone message posted on the call board; a blue slip from reception; and a completed application form.
- Reach consensus and make decision.

Closure: student report out and evaluation...

- What have you learned from this activity?
- What would have made this task easier to complete?
- How (and why) is teamwork important in this task activity and in the workplace in general?

Suggested Assessment:

- Student self assessment.
- Participation in and successful completion of both of the above activities.

CONSENSUS GUIDELINES

When a group works toward finding a solution with which everyone can agree that group is working to reach consensus. Here are some guidelines to reaching consensus:

Patience

Everyone must be patient if they agree to reach a decision or solution by means of consensus. Consensus takes longer than voting because everyone must be part of, understand and agree with the decision or solution being made.

Unity

Everyone realizes that they are together to come up with a solution that the whole group can accept.

Cooperation

It is important that everyone's ideas, feeling and needs are heard and understood.

Diversity

People will likely disagree on issues. It is important to listen to everyone's point of view and to see the truth and value in what everyone has to say.

Creativity

In the process of reaching consensus new ideas and viewpoints, which perhaps no one had thought of earlier, are born as a result of everyone sharing their ideas.

Building Bridges

When two people have vastly different points of view, it is often helpful for a third person to paraphrase each persons point of view and to show areas where the two people's ideas converge. Consensus is a process of building bridges between people.

Suggested Process

1- Write the problem on the board for everyone to see.
2- Privately, everyone writes their ideas for the solution on a piece of paper.
3- Individually, people share their ideas. No cross talk.
4- One person writes similarities and differences the group has on the board.
5- The group discusses the differences and works toward reaching agreement.
6- A solution is reached and is written on the board.

WHAT NEEDS TO HAPPEN FIRST?

You are the supervisor at a medium sized manufacturing company. There are several troubling things going on with your employees. Which problem would you address first? Put a number 1 infront of that. Then number the rest in the order you would address them.

MY CHOICE		GROUP CHOICE
	Being a heavy marijuana smoker	
	Wearing provocative clothes	
	Calling in sick a lot	
	Lying about hours worked	
	Working slowly	
	Gossiping about everyone	
	Taking personal calls	
	Dating a married coworker	
	Drinking during lunch	
	Taking home office materials	

St. Joseph Hospital

Business Profile:

St. Joseph Hospital has been meeting the health needs of the people of Bellingham since 1891 when Sister Teresa Moran and Sister Sanislaus Tighe opened a 30 bed hospital. In 1901, St. Joseph Hospital moved to a larger facility on Forest Street and their final move came in 1966 when construction was completed at the Ellis Street location. As the Whatcom County community grew and the demand for hospital services increased, St. Joseph Hospital was once again faced with space constraints. The hospital completed major renovations in 1975, 1985, and 1993. In an effort to once again expand its services, St. Joseph purchased St. Luke's General Hospital in 1989 and in 1995 they purchased the North Puget Sound Radiation Therapy Center on Squalicum Parkway.

St. Joseph currently has 253 acute care beds not including bassinets (nursery), 24 alcohol abuse recovery beds, 8 mental health beds, and 14 rehab beds. Approximately 1,250 people, both full and part-time, are employed by St. Joseph Hospital along with about 250 volunteers. St. Joseph is a not-for-profit, private institution, not supported by tax dollars. It is owned and operated by a Bellevue organization (Peace Health). It is fully accredited by the Joint Commission on the Accreditation of Healthcare organizations and is licensed and inspected by the Washington State Department of Social and Health Services.

St. Joseph Hospital provides a variety of Nursing Services, Diagnostic and Treatment Services, and Support Services: Mt. Baker Kidney Center, Volunteer Health Resources Network, Whatcom-Skagit Orthopedic Association, Interfaith Family Health Center, SIDS Library Collection, North Puget Sound Arthritis Association, and Children's Neuromuscular Program.

Workplace Applications Informational Interview

Business: St. Joseph Hospital
Address: 2901 Squalicum Way
Bellingham, WA 98225

Contact: Patti Newsted
Phone: (360) 734-5400
Date of Visit: November 9, 1995

****

Management/Human Resources Questions

Primary products/services: Medical care for patients.

What kind of person are you looking for? (personal attributes - employability)
Varies depending upon the positions available.

How do you announce employment opening/recruitment notices?
Weekly job posting sent out to all departments within the hospital; available at information desk.

What kind of pre-screening do you do? (education/experience/other)
1. Information taken off application.
2. Computer skills/experience.

What type of interviewing do you do? Principally one-on-one and team interviewing.

What are your most common reasons for terminating an employee?
Person interviewed wasn't sure.

What are the occupation titles within your workforce?
Nursing - RN, CNA
Variety of Technical Positions

What are the skills needed in five years? (workforce of the future)
- More technical skills.
- More computer involvement.

What type of retraining do you do?
- Technical skills done outside of the hospital.
- Inside training done one-on-one with video and cassette tapes.
- Sometimes employees sent to out-of-state training opportunities.

What percentage of your workforce has a four year degree? Person interviewed wasn't sure about percentage of the various levels of academic attainment for hospital employees.

What kind of accommodations do you make for people with disabilities?
Suit the job to the employee; wheelchair accommodations; changing of job responsibilities (job sharing when appropriate).

What is the role of employee organizations/unions in your company?
One union to represent the nursing area; some contracted employees.

Employee Questions

What do you like most about your job? Challenges; variability from day to day.

What do you like least about your job? The regulations from state and federal government that the hospital has no control over.

How did you choose this particular line of work? Happened into it.

What classes did you take in school that were most helpful? Statistics; public speaking.

What classes have been the least helpful? History; literature.

What would be a problem situation that you might face in your daily work? How would you handle it? Employee interaction problems; physical safety or plant type problems. Find alternatives, find appropriate solution; implement it.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? More focused on looking at potential careers instead of focusing on traditional careers.

Could you describe 3-5 specific skills that you use regularly on your job?

- Communication
- Management of people
- Financial responsibility (budgeting)

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Workplace Safety in Health Related Occupations

Submitted By: Maurene Fink (teacher partner)
Patti Newsted (business partner)

School: Bellingham High School
Business: St. Joseph Hospital

Career Pathway Focus: Health, Education, and Human Services
Subject Area: Health
Suggested Grade Level: 9-12
Category: Safety

Skills Being Applied ***(the workplace application)*****:** SCAN Skills...
- Information - Acquires and uses information.
- Thinking Skills - Makes decisions, solves problems, reasons.
- Technology - Works with a variety of technology.
- Resources - Identifies, organizes, plans and allocates resources.
- Interpersonal - Works with others.

WA State Student Learning Goal: #2 and 3
Essential Student Learning Element(s):
- Health #1 (understands the concepts and principles of health by his/her healthful choices and behaviors)
- Health #3 (uses health and fitness information to make informed decisions & solve problems)
- Communication #2 (listens and views for understanding)

Amount of Time Needed to Complete Lesson: 90 minutes

Materials Needed:
☐ VCR/TV
☐ Respiratory Test Kit
☐ Sharp Disposal Receptacle
☐ Glow Germ Kit
☐ Goggles
☐ Red Bags
Video Tape on Blood Borne Pathogens
Respiratory Devices
Bandages
Gloves
Proper Attire for Cleaning

Lesson Overview:
Hospital employees work in an environment where they are constantly exposed to a wide variety of situations that can compromise their health and that of their patients. GERMS ARE EVERY WHERE! All employees are required to follow appropriate workplace safety procedures and take precautions to ensure any risk of exposure (air-borne, blood, etc.) that may harm them or their patients. The hospital maintains very strict policies that serve to protect the health of their employees and their patients.

Directions for Lesson/Activity/Project:
This lesson includes a demonstration of proper hand washing, use of respiratory devices, waste disposal techniques, proper clean up procedures for spills, and appropriate use of restraint devices.

Day One:
Use the video (Blood Borne Pathogens) the day prior to the community partner attending school. This gives the students the rationale behind workplace safety issues. Have students brainstorm some of the health related issues that they think hospitals must deal with on a regular basis. Why do these health problems pose a risk for hospital employees? For patients?

Day Two: Health and Safety Educator from St. Joseph Hospital will be the guest speaker today. She will lead the students through a number of different activities that simulate health care concerns related to workplace safety.

Activity 1 - Respiration Test
The community partner brings a test hospitals use to measure the effectiveness and sizing of their respiration device.

Activity 2 - Respiration Devices and Purposes
Five different respiratory devices will be shown including the 3M 9940, the Airmate, and the UVEX which are used to protect against tuberculosis; the North 7700 and 3M 7200 cartridge respirators which are used to protect against formaldehyde. Students can try to guess what the respirators are used for prior to being told.

Activity 3 - Hand washing
Volunteer students will have the opportunity to wash their hands properly with instructions from the community partner. With the use of "Glow Germ" the students will be able to see how effectively their hands were washed.

Activity 4 - Spill Clean Up
A student will clean up a potentially infectious spill using prescribed methods. Ketchup will be used as blood and the needed protection attire will be provided. The community partner will display the range of attire needed depending upon whether the situation is low or high risk. Students will learn about the criteria used to determine "low" or "high" risk blood-related situations.

Activity 5 - Disposal of Refuse
Students will be shown a variety of receptacles for sharps and infectious materials, plus learn how to identify where certain materials should be disposed.

Activity 6 - Restraint Techniques
Time permitting, the students will go through a session on how (different devices) patients are restrained and the various situations when restraint might be needed.

Suggested Assessment:

- Students can wash their hands and use glow germ to test cleanliness.
- A student may be given a possibly hazardous situation and demonstrate what kinds of precautions must be used to deal with the situation properly.
- A student will choose a respiratory device based on circumstances presented to them.
- Student will be given an object to dispose of and will dispose of it in the proper receptacle.

WHATCOM MEMORIAL, INC.

Business Profile:

Whatcom Memorial, Inc. is the parent company of a family of services that has 105 years experience in providing complete funeral, cremation, and cemetery services to Whatcom County's families. What began as a single business in 1890, Monroe's Furniture and Undertaking, has grown into Whatcom County's most often chosen funeral service provider.

Whatcom Memorial, Inc. consists of Moles Funeral Home (Est. 1890) in Ferndale, the first funeral service provider in Whatcom County; Jones-Moles Funeral Home (Est. 1902) in Bellingham, now located in one of the most modern funeral service facilities in the Northwest; Greenacres Memorial Park (Est. 1929) in Ferndale, the county's only privately owned Endowment Care Cemetery; Greenacres Funeral Home (Est. 1985) in Ferndale, the only true cemetery-funeral home combination in the county; and Northwest Memorials (Est. 1993), a full service monument company.

Adapting to the needs of the community it serves, *Whatcom Memorial* offers traditional funeral-burial services as well as non-traditional services. Whether the choice is cremation or burial, *Whatcom Memorial* serves all faiths and ethnic communities with respect, dignity, and professionalism. *Whatcom Memorial* is privileged to belong to National Select Morticians, an invitation only association of funeral service providers dedicated to upholding the highest professional and ethical standards in the funeral home business.

There are 17 full time and 6-9 part time employees in *Whatcom Memorial, Inc.* Employment positions include management, funeral director, embalmer, accounting, clerical, family services, grounds and maintenance, and sales. Employees of *Whatcom Memorial* need a variety of skills to be successful in their daily work: team work, communication, reading, writing, and math skills are all essential. It is imperative for employees to exhibit confidentiality, sensitivity, and a caring attitude.

Workplace Applications Informational Interview

Business: Whatcom Memorial
Address: 5700 Northwest Road
Ferndale, WA. 98248

Contact: Rex Watt
Phone: (360)-384-3401
Date of Visit: Nov. 7, 1995

* * *

Management/Human Resources Questions

Primary products/services: Full service funeral home and cemetery. Ability to make any type of death care arrangement.

What kind of person are you looking for? (personal attributes - employability)

- "A People Person," with strong interpersonal and general communication skills.
- Someone that is adaptable to work with all kinds of people and can bring stability and calmness to an emotionally stressed family.

How do you announce employment opening/recruitment notices?
Generally through the newspaper - depending on what position needs to be filled. Also, some will come from trade associations and recommendations.

What kind of pre-screening do you do? (education/experience/other):

1. Ask for resume to examine education, experience, and other skills.
2. Mostly what kind of person you are: "team player," stable (calm, cool, and collected), and flexible (we work all hours).

What type of interviewing do you do? One-on-one with the initial interview and then a follow-up interview with the owner of the company.

What are your most common reasons for terminating an employee?
Being unprofessional. Drug or alcohol use on the job. Not being able to work as a "team player."

What are the occupation titles within your workhorse?

Groundskeeper
Bookkeeper
Embalmers
Cemeterian
Secretary
Funeral Directors
Pre-arrangements Counselor

Part time jobs: Hairdressers; Escort; Hostess; First call removal.

What are the skills needed in five years? (workforce of the future):

- Strong interpersonal communication/listening skills
- Creativity to develop creative options
- Computer skills
- Accounting/bookkeeping skills
- Sales and marketing

What type of retraining do you do? On-the-job training; apprenticeships.
Education requirements for a Funeral Director: 2 years of college with an emphasis in biology and chemistry; plus a 1 year apprenticeship.

What percentage of your workforce has a four year degree? 25% (not required); 2 year degree? 25%; High school diploma only? 50%; Not high school graduates? 0%

What kind of accommodations do you make for people with disabilities?
We are equipped for handicap access. Depends on job being applied for.

What is the role of employee organizations/unions in your company?
Non-existent. Some Seattle funeral homes are unionized.

First Line Supervisor Questions

Primary products/services: Full service funeral home and cemetery.

What kind of person are you looking for? (personal attributes - employability) Persons with good interpersonal and communication skills. Team player, reliable and dependable.

What type of retraining do you do? Annual one day company retreat; on-the-job training; apprenticeships; seminars; conventions and annual meetings.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Computers; specialized outdoor equipment and chemicals for groundskeeper; telephone skills.

How would you recommend we teach the work ethic to students? Work ethic is extremely important since your work merit is how you are rewarded with pay increments.

What is the one thing you wish we would teach our students? Honesty and respect.

What is the most valuable skill an employee can bring to your department? (why) Understanding and concern; good communication; listening skills and compassion.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Nothing that I can think of.

What do you foresee to be the "future trends" in your business area? Large companies and more specialized job opportunities. Trend away from tradition.

Employee Questions (Office Receptionist - 8 years on the job)

What do you like most about your job? Working with the families; being a caregiver and supporting families through very difficult times of loss. We all grieve differently and support can mean: giving words of comfort, hugs, and sometimes just listening.

What do you like least about your job? It is difficult when "loss" also becomes a financial hardship and families experience additional stress over the costs involved.

How did you choose this particular line of work? I was associated with the Visiting Nurse program and the caregiver environment. This was an opportunity to help others through their grief and loss--which I experienced in my own life. I could relate.

What classes did you take in school that were most helpful?
College classes included business and psychology and sociology (2) years. Personal experience; grief and bereavement classes/seminars I've attended in the past 8 years.

What classes have been the least helpful? All areas are helpful when working with the public as you are working with people who have varied interests and backgrounds.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Communication with others. Being sensitive and respectful of others.

Could you describe 3-5 specific skills that you use regularly on your job?
- ☐ Typing/Filing
- ☐ Communication/Composition
- ☐ Math

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Grief Process/Choices

Submitted By: Jeanne Dorr (teacher partner)
Rex Watt (business partner)

School: Bellingham High School
Business: Whatcom Memorial Inc.

Career Pathway Focus: Health and Human Services
Subject Area: Health/Family & Consumer
Category: Mental Health
Suggested Grade Level: 9-10

Skills Being Applied ***(the workplace application)*****:**
- Interpersonal communication skills
- Listening skills

WA State Student Learning Goal: #1 and 2
Essential Student Learning Element(s):
- Communication #2 (student listens and views for understanding)
- Health #1 (student understands the concepts & principles of health & fitness)

Amount of Time Needed to Complete Lesson: Two class periods of 55 minutes each

Materials Needed:
- ☐ Overhead projector
- ☐ Prepared transparencies
- ☐ Printed pamphlets (Grief Process)

Lesson Overview:
1. To acquaint students with the funeral profession.
2. To familiarize students with career opportunities within the funeral profession.
3. To relate funeral profession job skills to classroom skills.
4. To acquaint students with the grief process, and show that one can grieve over different kinds of losses.
5. To reinforce healthy choices by discussing results of unhealthy choices.

Directions for Lesson/Activity/Project:

Guest Speaker**: Rex Watt**
Topic: **The Funeral Profession**

(continued)

Lecture Outline

I. The Profession
  A. General Overview
    1. Death Care Industry
    2. Remembrance Industry
    3. Major Job Positions Within the Industry

II. The People in the Profession
  A. Funeral Directors
  B. Embalmers
  C. Cemeterians
  D. Office Staff
  E. Sales

III. Services Provided
  A. Arrangements
  B. Funeral/Memorial Services
  C. Counseling
  D. Financial Planning

IV. The Grief Process
  A. Unique
  B. Real
  C. Common Elements
  D. Healing Path

V. Choices We Make
  A. Decision-Making Process
  B. Healthy Choices

Suggested Assessment:

- Have student pairs "counsel" each other about the grief process.
- Have each student discuss with another student the different signs and symptoms of grief.
- What might be some suggestions to help deal with loss (how would you counsel someone through the grief process?).
- Ask students to share some of their ideas. How many of you have dealt with a "loss" situation? How many of you have "counseled" someone (friend, family member) through grief and loss? (a suicide situation?)

WHATCOM MEDICAL BUREAU

Business Profile:

Whatcom Medical Bureau is the second oldest medical bureau in Washington State. It was organized and sponsored in 1932 by the Whatcom County Medical Society.

For more than 60 years, the bureau has provided quality prepaid health care coverage to residents of Whatcom and San Juan counties. *Whatcom Medical Bureau* is a non-profit corporation as a health care service contractor under the laws of the State of Washington and under regulation of the Insurance Commissioner. The company focuses on affordable health care coverage and innovative customer service programs for their subscribers.

Whatcom Medical Bureau's membership is made up of physicians and they elect a Board of Directors. The Board membership includes four physicians, four non-physicians, and the Medical Bureau's president, Charles Beard.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Making an Impressive Impression Through Written Communication

Submitted By: Kathy Wright (teacher partner)
Mike Fournier (business partner)
Vice President of Marketing

School: Blaine High School
Business: Whatcom Medical Bureau

Career Pathway Focus: Health and Human Services
Subject Area: Family & Consumer Science
Category: Employment Skills
Suggested Grade Level: 9-12

Skills Being Applied ***(the workplace application)*****:**
- Clear, concise writing skills
- Computer skills
- Acquiring and processing data
- Self-management skills
- Self-esteem

WA State Student Learning Goal: #1
Essential Student Learning Element(s):
- Communication #4 (makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: 3-5 class periods

Materials Needed:
- ☐ Stack of rejected resumes and job applications
- ☐ Excellent examples of cover letters, resumes, applications
- ☐ Access to computers
- ☐ Sample tests used as part of the hiring process
- ☐ Set of standard interview questions
- ☐ Video camera
- ☐ Guest speaker -- Personnel Manager

Lesson Overview:
Job seeking skills are a critical component of any successful job search process. Employees at Whatcom Medical stressed the importance of students being well prepared for the job search...appropriately dressed, neatly prepared and complete job application form, well written resume clearly identifying the job applicants skills and abilities, and prepared for potential interview questions.

Directions for Lesson/Activity/Project:

1. Guest Speaker (Human Resources/Personnel Manager) will talk with students about the "paper -screening" process used in business as part of the applicant selection process. Students will see a stack of rejected applications as the guest speaker talks about "first impressions" through written applications and resumes. The "rejects" will never make it to the interview stage (even though they might have been an excellent employee) because they couldn't get past the "written review."

2. The guest speaker will review the screening process, providing helpful hints...the do's and don'ts of the job search process.

3. **Resumes...**students will then **write their own resume**. Students will identify
    - A "practice" career objective.
    - Education information.
    - Clearly identified skills and abilities...use action verbs to describe (type 60wpm; proficient at using Excel computer program; night shift manager - 25 employees, etc.)
    - Brainstorm their service learning experiences.
    - Work-based learning experiences.
    - List honors and awards from any aspect of their life, not just school life.
    - Brainstorm their interests and hobbies (shopping and talking on the phone should not be included! ☺).
    - Extra-curricular activities need to be included, along with appropriate dates.
    - References should be included, but only once permission has been obtained from the reference source: name, position, address, phone number.
    - Resume must be word processed.
    - Resumes will be turned in, corrected and handed back for final rewrite.

4. **Job Application...**using their completed resume, a **job application will be filled out.**
    - Applications should be typed, but if use pen (fill out while at the job site), then must use blue or black ink only...no pencil or red (colored) pens. Bring your own pen and make sure it works!
    - Fill in all application blanks. Don't fold. Make sure you have your social security number with you when you apply. Sign the form.
    - Students can fill out an application for a social security card in class...I keep extra forms in the classroom for those students who do not have a social security card. A real life skill!

5. **Cover letters...**these were part of the "yes" pile of applicants shared earlier.
    - Students receive a list of the most often asked interview questions. They are required to write out their answers, practice saying their responses at home, and come to class prepared for a practice video interview.
    - Following the interview, students will critique themselves (laugh, etc.), then go home, practice again and come back prepared to do a final video interview which lasts approximately 2 minutes.

- Students are required to critique their final interview. The criteria they will review is voice, mannerisms, appearance, verbal distracters, content of answer(s) and time.

Suggested Assessment:
All of the completed written work (cover letter, resume, application), self-evaluation/critiques, and videos are part of the assessment process.

SCIENCE &
NATURAL RESOURCES

TECH PREP

CAREER PATHWAYS

Lynden Police Department

Business Profile:

The *Lynden Police Department* provides public safety and the enforcement of federal, state, and local laws. The people who are employed with the police force all have at least a 2 year degree. Police personnel are expected to exhibit common sense, good judgment in crisis situations, and honesty.

Personnel in the Police Department are required to use a variety of equipment, such as computers, radar units, blood alcohol level meters, emergency vehicles, and firearms. Being comfortable with the use of technology is important as is versatility and the ability to plan ahead. An important workplace skill is the ability to work as a team member.

Employees may be asked to deal with mentally disturbed individuals, potentially violent situations, or handle incidents that require excellent communication skills. Officers suggest academic concentration on writing skills, psychology, observation and problem solving, and foreign languages.

To obtain a position at the department, applicants must take polygraph, medical, psychological tests after passing an initial written test, an interview and a physical agility test.

Workplace Applications Informational Interview

Business: Lynden Police Department
Address: 1610 Grover
Lynden, WA 98264

Contact: Lt. Billester/Chief Jack Foster
Phone: (360) 354-2828
Date of Visit: May 24, 1996

* * *

Management/Human Resources Questions

Primary products/services: Enforcement of Federal, State, and Local laws.

What kind of person are you looking for? (personal attributes - employability)

- Common sense
- Good judgment
- Calm under stress
- Honest and loyal

How do you announce employment opening/recruitment notices?
Newspapers and law enforcement periodicals.

What kind of pre-screening do you do? (education/experience/other)
Polygraph, medical and psychological testing, written exam, interview and physical agility testing.

What type of interviewing do you do?
A Board with two to four interviewers.

What are your most common reasons for terminating an employee?
Could vary - no common reasons.

What are the occupation titles within your workforce?

Chief Lieutenant
Police Officer
Administrative Assistant
Police Clerk
Animal Control Officer
Parking Control Officer

What are the skills needed in five years? (workforce of the future) Excellent reading and writing skills, computer knowledge, application of law.

What type of retraining do you do? In service academy, firearms training, first aid, CPR, legal updates, weaponless defense techniques.

What percentage of your workforce has a four year degree? 30% 2 year degree? 70%
High school diploma only? 0% Not high school graduates? 0%

What kind of accommodations do you make for people with disabilities? In compliance with State law.

What is the role of employee organizations/unions in your company? Wage negotiations.

First Line Supervisor Questions

Primary products/services: Same as above.

What kind of person are you looking for? Same as above.

What type of retraining do you do? Same as above.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Firearms, operation of emergency vehicles, computers, hand held radar unit, blood alcohol level testing equipment.

How would you recommend we teach the work ethic to students? By citing examples of successful well known people who have *earned* their position. Then have them put it into practice.

What is the one thing you wish we would teach our students? To think ahead, plan ahead, personal responsibility, accountability, honesty.

What is the most valuable skill an employee can bring to your department? Ability to work in harmony with others. It will be a requirement for longevity in the workplace.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? No response.

What do you foresee to be the "future trends" in your business area? Computerization and forensics.

Employee Questions (Police Officer, several -- 5, 6, 18 years on the job)

What do you like most about your job? Versatility and variation of job task and situations.

What do you like least about your job? Rotating shifts and the required paperwork.

How did you choose this particular line of work? Personal interest in public service.

What classes did you take in school that were most helpful? Law enforcement, police science, psychology, political science.

What classes have been the least helpful? Geology, sociology, chemistry.

What would be a problem situation that you might face in your daily work? How would you handle it? Confronting mentally disturbed subject, potential violence, uncooperative. Deal with calmness and safety of all in mind.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? English, language, writing skills, and foreign language.

Could you describe 3-5 specific skills that you use regularly on your job?
☐ Verbal communication skills
☐ Writing skills
☐ Observation skills
☐ Officer safety skills
☐ Problem solving skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Who Dunnit?

Submitted By: Mari Knutson (teacher partner) **School:** Lynden High School
Lt. John Billester (business partner) **Business:** Lynden Police Department

Career Pathway Focus: Science & Natural Resources *or* Health & Human Services
Subject Area: Science **Category:** Biology
Suggested Grade Level: 7-12

Skills Being Applied ***(the workplace application)*****:**
- Making observations
- Collecting and analyzing data

WA State Student Learning Goal: #2 and 3
Essential Student Learning Element(s):
- Science #2 (conduct scientific inquiry)
- Science #3 (communicate scientific understanding)

Amount of Time Needed to Complete Lesson: several class periods

Materials Needed: Examples of evidence...
- ☐ mannequin
- ☐ toy gun
- ☐ cup of coffee
- ☐ powdered sugar
- ☐ soil
- ☐ hair

Lesson Overview: Most of police work is based on highly refined observational skills. Police officers are required to collect and analyze data (evidence), use strong communication skills to seek out information, be observant of their surroundings and of the actions of people. Through analysis, police officers/detectives are asked to draw conclusions to solve crimes.

A local police officer will work with science students to help them apply the skills of scientific inquiry to a "crime scene."

Directions for Lesson/Activity/Project:
1. Teacher contacts the police officer in charge of handling evidence to find out what kinds of tests, sampling, observations and data gathering can be done at a crime scene. Typically these will be, collecting fibers, hair, fingerprints, and noting the general characteristics of the crime scene. Most of these can be easily done in a classroom environment without a lot of preparation.

2. A small group of students are asked to prepare a crime scene scenario. One of the students should feel comfortable being the "perpetrator."

3. When the police officer arrives, ask a couple of students to assist in evidence collection and the rest to assist in questioning the suspects as well as the officer (data collection).

4. Students are asked to note observations and data and analyze the results to determine the primary suspect. Example: the scene was of a mannequin at a desk. A gun was in his hand and he had been shot in the temple (we used red construction paper for the blood pool and spattering). Only the "wife's" prints were on the handle of the gun, the handle of the coffee cup, and the corner of a suicide note. A couple of her hairs were on the prostrate body and caught in the bullet chamber of the gun. A small amount of white powder was on the rim of the coffee cup and on the desk (powdered sugar, aka poison). Several of the students that were in on the scene preparation were questioned (they made up great relationships with the deceased). We used a black cup so that white fingerprint dust was used, and a gun with a white smooth handle so that black print powder could be used. The suicide note was sprayed with ninhydrin spray. Hair can be looked at under a microscope if the "wife" will provide a sample.

5. Some of the evidence was "bagged" so that students could see how tight the chain of evidence is maintained.

6. Students are asked to write a "subpoena" outlining the evidence pointing to their chosen suspect.

7. The next day, the police officer returned to "arrest" the "wife" and present the evidence so that all students could find out "Who Dunnit."

Suggested Assessment:
Have students analyze a different crime scene (students from one team could challenge another) or write a short manual on the steps taken in good crime scene management. In their discussions and written work, students are asked to apply the techniques of scientific inquiry to the problem (crime scene).

VECO ENGINEERING, INC.

Business Profile:

For over 24 years, *VECO* has supported the oil, gas, mining and heavy industries with large-scale engineering, construction, operations and maintenance services. *VECO* is Alaska's largest firm with employment in excess of 10,000 people. In 1991, *Engineering New-Record* ranked VECO 55th out of the top 400 US contractors.

VECO purchased Christensen Engineering in Bellingham a year ago and have their local offices in the historic "flat iron" building at Bay St. and Holly. This office employs about 384 people. The company operates both in the US and internationally, offering design and engineering services, project management, construction services, procurement and materials management and QA/QC.

VECO is a diversified company providing innovative services and design solutions which help their clients be more competitive. Services offered include process and project studies, site surveys, process and project engineering specifications, procurement of equipment and materials, plant layout, as well as construction. Assignments have ranged from a few hours of engineering consultation through total project responsibility.

VECO is actively involved in complex projects involving: chemical plants, pharmaceutical companies, communications, industrial buildings, marine facilities, mining facilities, oil and gas facilities, petrochemical plants, power generation, process plants, pulp and paper mills, refineries, roads and bridges, terminals, and utilities.

In the principal engineering disciplines, there is a staff of highly experienced senior design personnel to augment their engineering capabilities. They have computer support in the areas of AutoCAD, AutoTrol, technical design, pipe stress and word processing. The group of experienced professionals has been working as a team for many years, and as such provides a cost effective engineering and design effort to their clients.

VECO is a fully self-sustained company with its own in-house support services that include a reproduction/drawing control department, a computer service/programming department, a fully staffed accounting department, a human resources department, and a communications-traffic support group. The computer services provide support for the engineering and design staff with a wide variety of software appropriate for each engineering discipline.

As of October, 1995 the Bellingham office advertised employment openings in the following departments: administration, advanced controls, civil engineering, drawing control, electrical engineering, instrumentation, computer network engineering, mechanical, piping design, process engineering and project control. Most engineering openings required degrees and 10 or more years of experience. A few openings were temporary. There were three office positions listed which did not require technical experience but did require excellent spelling, grammar and typing skills.

Workplace Applications Informational Interview

Business: VECO Engineering (formerly Christenson)
Address: Bay St. 1313 Bay St.
Bellingham, WA 98225

Contact: Ingrid Griffin
Phone: (360)-676-1500
Date of Visit: Oct. 26, 1995

****

Management/Human Resources Questions

Primary products/services: A "single source" providing engineering services, construction, maintenance, operations and drilling services for the petrochemical industry and other kinds of manufacturing.

What kind of person are you looking for? (personal attributes - employability)
Wide range of job possibilities from engineering to human resources and clerical staff, but in all cases we want individuals with good communication skills, good technical background including computer skills, and with the ability to work with others.

How do you announce employment opening/recruitment notices?
We advertise and maintain a job hotline phone number.

What kind of pre-screening do you do? (education/experience/other)
Conduct a prescreening interview by phone to determine background, skills, interests, experience.

What type of interviewing do you do?
We start with an interview with a human resources specialist. If the prospective employee meets the job criteria and seems promising, they interview with the supervisor of the department involved.

What are your most common reasons for terminating an employee?
Poor attendance/lack of responsibility.

What are the occupation titles within your workforce? Engineer, technician, human resources, accountant, administrative assistants.

What are the skills needed in five years? (workforce of the future) Computer, communication, and people skills. Internet experience and team-work experience.

What type of retraining do you do? Not much for basic skills but provide opportunities to upgrade technical skills.

What percentage of your workforce has a four year degree? 25%; 2 year degree? 50%; High school diploma only? 15%; Not high school graduates? very few

What kind of accommodations do you make for people with disabilities? Elevator, large bathrooms, one building is set up for wheelchair access.

What is the role of employee organizations/unions in your company? No unions; we have a quality committee and safety committee which represent the interests of our employees.

First Line Supervisor Questions

Primary products/services: Engineering and procurement services at the local office. The Alaska office deals more with the petroleum industry.

What kind of person are you looking for? Same response as above plus leadership ability.

What type of retraining do you do? Not much. Some very specific procedures are taught on the job.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Computer: network, Windows, email, Excel, specialty simulation programs, and some CAD for individual jobs.

How would you recommend we teach the work ethic to students? Parents should be teaching this.

What is the one thing you wish we would teach our students? To ask questions.

What is the most valuable skill an employee can bring to your department? Obvious technical skills plus communication ability.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Penmanship, manual drafting, and some manual operations that are now computerized but about which workers still need a basic understanding of the process.

What do you foresee to be the "future trends" in your business area? More computerization of repetitive processes.

Employee Questions **(Chemical Engineer, in general; process engineer, specifically - 1 year at Veco; 15 years experience)**

What do you like most about your job? Teamwork, variety, the trouble-shooting and the problem-solving that is involved.

What do you like least about your job? Lack of quality due to time constraints and budget limitations.

How did you choose this particular line of work? Interest lead to coursework in college; practicality of the courses lead to continue in that direction for employment.

What classes did you take in school that were most helpful?
Calculus in college; an inspiring biology teacher in high school turned me on to science.

What classes have been the least helpful? Penmanship, maybe Home Economics.

What would be a problem situation that you might face in your daily work? How would you handle it? Changes midstream into a project; poor communications. I have to resolve the changes and redo the work.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? I could have gotten more out of my college experience at UW if I had been more aggressive about asking questions and getting help. I would advise others not to be passive or intimidated by professors.

Could you describe 3-5 specific skills that you use regularly on your job? Under communication skills: speaking and writing, especially technical writing; math and computer skills, problem-solving skills and group dynamics.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Surge Tank Project

Submitted By: Joan Beardsley (teacher partner)
Ingrid Griffin (business partner)

School: Bellingham High School
Business: VECO Engineering

Career Pathway Focus: Science/Engineering
Subject Area: Science (or Mathematics)
Category: Chemistry or Physics
Suggested Grade Level: 10-12

Skills Being Applied ***(the workplace application)*****:**
- Basic math and geometry skills
- Computer design
- Human relations skills -- communication and cooperation
- Presentation skills

WA State Student Learning Goal: #1, #2, and #3
Essential Student Learning Element(s):
- Math #1 (understands & applies the concepts and procedures of mathematics)
- Math #2 (solves problems using mathematics)
- Math #3 (uses mathematical reasoning)
- Math #5 (makes mathematical connections within mathematics, among disciplines, in real-life situations)
- Science #4 (understands interdependence among science, technology, & mathematics)
- Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)
- Communication #4 (makes effective presentations using a variety of skills & communication strategies)

Amount of Time Needed to Complete Lesson: 5 days -- preferably with a weekend after the first 2 days so that students have time to mull the problem over in their mind.

Materials Needed:
- ☐ Computers equipped with Word and Excel
- ☐ Block Flow Diagram depicting the problem
- ☐ Presentation materials such as transparencies or poster board

Lesson Overview: At VECO Engineering it is apparent that engineers must be fluent with the latest technology and also able to communicate well with each other and their client. The work group, consisting of a project engineer, one or two process engineers, and a design engineer capitalizes on all the differing talents and backgrounds of the individual team members. Important skills that are apparent include the ability to ask questions and to be flexible as the client changes or further develops the parameters of the job.

This problem, like many of those in real life, is open-ended with various solutions which can all be satisfactory if they can be justified. The problem also requires creativity, communication skills, and cooperation. The end product will be generated on a computer, as is typical of this workplace.

1. Students have to draw on their understanding of mass balance, geometry, and fluid flow.
2. Student have to experiment with different designs to find the best solution.
3. They have to organize in engineering work groups and share responsibilities for solving the problem.
4. The problem is integrated and open-ended and so it demands that kind of thinking.
5. It is a simulation of a real situation in which students work as engineers would do.

Directions for Lesson/Activity/Project:
Before the problem is addressed by the visiting engineer, hand out the overview sheet, ask the students to read it over to orient themselves and to come in the next day having decided who they would like to work with.

Day 1: Engineer visits and hands out block flow diagram of the surge tank situation. Students sit with their engineering work group. Engineer plays role of client to answer questions and leaves his or her email address so that students can continue the contact.

Day 2: Teacher models using Excel with formulas to organize data into charts and calculate results. (Optional if the computers are not available) Teacher hands out assessment sheet so that students know what will be expected in the final product. Students break into work groups to analyze the problem.

Day 3 and 4: Work days to solve the problem and prepare the presentation. Teacher can play the role of client for questions whose answers have already been established. For other questions, engineer can be contacted by email.

Day 5: Presentation of solutions to a panel of teachers, engineers, and students.

Suggested Assessment: Student engineering groups appear before a panel which scores their solution according to a form which the students were given at the start. Total points possible from the panel are 75. In addition, students do a group assessment worth 15 point on the others with whom they worked, and the teacher awards up to 10 points/student for general ability to work productively and cooperatively.

ENGINEERING PROJECT IN COLLABORATION WITH VECO ENGINEERING

WHAT IS THIS ALL ABOUT AND WHY ARE WE DOING IT?

"Chemists have solutions!" is more than a pun. In a working situation chemists investigate and solve problems. When the solution is practical, applying chemical and mathematical principles to create some product, the job falls to a chemical engineer.

We will visit with Mrs. Ingrid Griffin, chemical engineer with VECO Engineering here in Bellingham. She has outlined a problem for you to solve that is typical of the work that an engineer does. You will participate in a group of three or four people, like she does, to solve the problem. During her visit she will play two roles: the chemical engineer that she is by profession and the representative of the the firm that is "hiring" your group. Your job will be to obtain information to orient yourself and your group so you have the big picture and as many of the details as possible.

As a result of a project like this, I hope that you will see a wider application for the subjects you take in school and some career opportunities for a talented person like yourself!

WHAT IS THE PROBLEM?

A silicon manufacturing plant in Moses Lake, WA produces very high purity *Si* for the computer chip industry. The plant runs 24 hours a day. It has three silicon production vessels which need to be washed out after each batch of *Si* is completed. The wash water is full of sludge, a dusty residue of *Si*, which can be recycled. This is accomplished in a settling pond from which the clean surface water is piped off and reused. There are two settling ponds. When one is full of silicon sediment, that residue is allowed to dry so that it can be scraped out. During this time the other pond takes the inflow of dirty water.

The settling pond works well if it doesn't get stirred up by a rush of incoming water. The maximum inflow rate is 75 m^3/hr. At a greater volume per hour, the sediment is agitated, the settling process is delayed, and the plant can not operate at peak capacity. But the tanks must be cleaned whenever they are dirty to maintain the highest purity of the *Si*. It takes 20 minutes to wash and drain a reactor tank. See the block flow diagram for the capacities and number of times each reactor must be washed during the 12 hour day shift. The reactors will be used only during the day. They are at a higher elevation than the settling pond and so empty by gravity flow when an operator turns a valve.

The manufacturer has decided to install a receiving tank, called a surge tank, into which the dirty water will come from the production vessels whenever they are cleaned during the day. The surge tank is at a low level and will pump water out into the settling pond whenever you decide it should, over 24 hours. You can assume that the dirty water in the surge tank stays stirred up so it doesn't fill with sediment. The tank can be open because rainfall in Moses Lake is light and water evaporates readily. The manufacturer is hiring you to design the surge tank, decide on the size of the pump(s) with which to operate it, and design the monitoring system which will allow operators to run it on a 24 hr. basis. You need to maintain 10% of the liquid in the tank so that the pump doesn't suck in air. For unexpected rainfall or untimely surges, you should build in about 20% extra volume to prevent messy overflows. There are multiple solutions but the manufacturer will buy the design which combines the lowest cost with low maintanence, reliability, innovation, and good detailed design.

Mrs. Griffin will provide you with a block flow diagram that contains the basics of the problem and a handout on tank water level control devices to give you some ideas. The block flow diagram is also a model of the simplest way you must present your solution. Where there are question marks, you provide your answer.

HOW DO PEOPLE WORK TOGETHER TO SOLVE A PROBLEM LIKE THIS?

Division of labor - These people are all engineers but diversify according to their talents and interests. Mrs. Griffin is a process engineer. In your group of 3 or 4 people, one person should play each role, with two people as process engineers if you have 4 in a group.

JOB DESCRIPTIONS:

Project Engineer - Communicates with all people involved: engineering team members, clients, other people in the engineering firm, the public.

- Demonstrates people skills and good organization.
- Broad engineering skills and can help troubleshoot any of the other tasks.
- Good questioner because problems arise if client doesn't make all aspects of the job clear.
- Responsible for keeping the team on schedule and on budget.
- Is organized and can help others keep on task.
- Makes final decisions. Takes the "heat" from the client or the bosses of the engineering firm if things go wrong.

Process Engineer - The idea person. Develops the solution conceptually.

- Demonstrates engineering know how and mathematical skills.
- Responsible for the nuts and bolts of the plan, how it will work, what is involved, facts and figures.
- Flexible, creative, problem solver, strong math and science background.

Design Engineer - Takes the ideas of the process engineer and fleshes them out into a practical plan. This is a job for a "hands on" person.

- Visualizes the solution. Makes a blueprint, or model, or block flow diagram.
- Decides what will really work.
- Must have strong computer skills and graphics abilities.
- Must be creative and innovative. Artistic ability a plus.

ASSESSMENT OF THE "DELIVERABLE" (Engineer lingo for the product) AND ITS PRESENTATION.

25 pts. - an Excel Block Flow Diagram, similar to the one provided by Mrs. Griffin, except with the volume of the surge tank and the pump(s) sizes specified. On that diagram include a budget based on the costs she has given you.

Up to 25 pts more - a Control and Monitoring System that will allow an operator to know when to turn on the surge tank pump and keep the process running 24 hrs. a day. The client will want to hire as few operators as possible, so a central control panel that can direct the operator to press buttons to start and stop the pump is preferable to having the operator walk out and look in the tank or start operations manually. This is not required but is a creative part of the problem that can discriminate between satisfactory and excellent products.

Up to 25 pts - Group Assessment. Members of the team will award 1-20 pts. on how well each member performed the tasks as outlined above. **Teacher,** based on observation of the group working process and the product, graded 1-5 pts. on how well these tasks were accomplished.

Up to 25 pts. - Presentation. You will have 10-12 minutes to show your plan, explain it, and otherwise sell your clients on the merits of your solution. Divide the labor as follows:

Project Engineer: Organizes and introduces the deliverable with an overview of the solution and the budget. I recommend overhead transparencies or a Power Point presentation of the simplest Block Flow Diagram that contains the volume of the tank and the capacity of the pump(s) you decided on. Also include your basic budget and a listing of the number of hours spent on the project. In a real situation, your engineering time would be billed to the client and so you would keep a time log for each job you worked on.

Then each *Process Engineer* presents his/her contribution and explains it. Further detail should emerge. Make clear your calculations and how you arrived at the volume of the surge tank. Use charts and graphs that are well organized. Excel format recommended.

Design Engineer then elaborates on the control/monitoring system - how will the operators keep the system running smoothly?

An excellent solution to the problem will ....

1. Be cheap but work. Clients want to spend as little $ as possible but want a reliable answer.
2. Include a table of costs with justification for the tank and pump size decided on and for any other special additions.
3. Be innovative. Clients like to show off their "new acquisitions" or fine operations.
4. Be detailed. Leave nothing to guess work. Be clear and informative.
5. Requires low maintenance, be reliable, have a plan for breakdown or include solutions to foreseeable problems such as heavy rain.

A group of honored guests, including Mrs. Griffin, school staff, and a school board member will award the points possible on the presentation.

THE SCHEDULE:

Before Mrs. Griffin comes: Decide what role seems to fit your talents and interests. Talk with some other people in the class and work up a group of 3 or 4, each person filling one of the general jobs. Think about the problem at hand. What further information might you need? What questions do you need to ask? Then sit with your group and be sure to ask your questions. You will have 4 class periods dedicated to this project after Mrs. Griffin visits.

Day 1: Meet with your group and get down to the business of working out the solution. The project engineer should coordinate the meeting, but all people should be involved in planning the solution. What calculations will you need to do? Any further information needed? What kind of a plan seems good?

Day 2: Get up to speed on the Excel skills that will help on this project. Use Excel lesson 3: "Making a Flow Chart", and Excel Lesson 4: Using Formulas in Spreadsheets.

Days 3 and 4: General work days to put your answer in order and type out the way you want to present it. You are expected to delegate chores and work out some of the fine points as homework.

DUE DAY - Dec. 1st.

SURGE TANK PROJECT

REACTOR 1
Volume = 50 m3

Empties 7 times/12 hrs

REACTOR 2
Volume = 30 m3

Empties 12 times/12 hrs

REACTOR 3
Volume = 40 m3

Empties 10 times/12 hrs

YOUR TASK:
DETERMINE THE SMALLEST SIZE SURGE TANK CAN BE.
WHAT CAPACITY PUMP(S) WILL YOU USE?
ITEMIZE YOUR BUDGET FOR TANK AND PUMP.
DESIGN A WAY TO MONITOR AND CONTROL THE FLOW.

??? Volume
SURGE TANK
Si dust stays mixed

Your pump speed?
Max. Pump Speed = 75m3/hr

2 Settling Ponds - only one in use at a time.

Si settles out and is dredged and landfilled.
Clear water is reused for washing and for irrigation by local farmers.

BUDGET SPECIFICATIONS

Tank Costs: $100/m3 for shop fabricated carbon steel.
$200/m3 for field fabricated
Max. shipping dimensions: 5 m in diameter and 20 m in length.
Pump Cost: $20 for each m3 of capacity pumped per hour.
It takes 20 min to clean out a reactor tank.

INFORMATION SUPPLIED BY THE CLIENT DURING QUESTION SESSIONS

Reactor tanks are elevated about 5 m above the level of the surge tank they drain by gravity flow.
Reactors work during the day but not at night. Surge tank operates 24 hrs.
Liquid pumps should not suck air. Leave water = 10% tank's capacity in the bottom when the tank is "empty".
Tank can be open. Design some extra space for surplus flow, rain, glitches since reactors won't always be on a perfect schedule.
Carbon steel is comes in 4ft x 8ft sheets. The fewer cuts the less costly the construction.
Concrete can be used, but it requires sinking the tank in the ground to support the sides.
Soil conditions make it difficult to dig deeptr than 10 ft.
Anything sunk will require a vertical pump costing $40/m3/hr.

A TRANSPARENCY USED TO HELP DEVELOP A GOOD WORKING GROUP.

Chemical Engineering Project - Division of Labor - Job Descriptions
These people are all engineers but diversify according to their talents and interests.

Project Engineer: Communicates with all people involved--engineeering team members, clients, other people in the engineering firm, the public.

Demonstrates people skills and good organization.

Broad engineering skills and can help troubleshoot any other tasks.

Good questioner because problems arise if client doesn't make all aspects of the job clear.

Responsible for keeping the team on schedule and on budget.

Is organized and can help others keep on task.

Makes final decisions. Takes the "heat" from the client or the bosses of the engineering firm if things go wrong.

Process Engineer: The idea person.

Develops the solution conceptually.

Demonstrates engineering know how and mathematical skills.

Responsible for the nuts and bolts of the plan, how it will work, what is involved, facts and figures.

Flexible, creative, problem-solver, strong math & science background.

Design Engineer: Takes the ideas of the process engineer and fleshes them out into a practical plan.

Visualizes the solution.

Makes a blueprint, or model, or block flow diagram.

Decides what will really work.

Must have strong computer skills and graphics abilities.

Must be creative and innovative. Artistic ability a plus.

ASSESSMENT OF EACH PERSON'S CONTRIBUTION TO THE GROUP EFFORT.

1. **Members of the team will award 1-20 pts. on how well each member performed the tasks as outlined above.**
2. **Teacher, based on observation of the group working process and the product, graded 0-5 pts. on how well these tasks were accomplished.**

PRESENTATION

Introduced and organized by project engineer who presents an overview of the solution and the budget.

Overhead transparencies or Power Point presentation recommended to show decision on tank size and pump size along with the associated costs.

Each engineer presents his/her contribution and explains it.

Further detail explained or a more detailed plan shown and discussed.

Make clear your calculations and how you arrived at the volume of the surge tank.

Use charts and graphs that are well organized. Excel format recommended.

Design engineer elaborates on control system - How will operators keep the system running smoothly?

An excellent solution to the problem will ....

1. **Be cheap but work. Clients want to spend as little $ as possible but want reliable answers.**
2. **Include a table of costs with justification for the tank and pump size decided on and for any other special additions.**
3. **Be innovative. Clients like to show off their "new acquisitions" or fine operations.**
4. **Be detailed. Leave nothing to guess work. Be clear and informative.**
5. **Required low maintenance, be reliable, have a plan for breakdown or include solutions to foreseeable problems.**
6. **Include a time/work log for the engineering team.**

ASSESSMENT OF THE "DELIVERABLE" (Engineer lingo for the product) AND ITS PRESENTATION.

Group Members: ____

____

Period: _______

25 pts. - an Excel Block Flow Diagram including the following information:

Layout of the plant (similar to the diagram given to you) _______ 5 pts.
Volume of the Surge tank _____ 5 pts. Dimensions of the tank. ____ 3 pts.
Size of pump selected _____ 2 pts.
Time spent by your team to complete the project ______ 5 pts.
Budget _______ 5 pts.

Product total pts: ________

Up to 25 pts more for rationale behind the decisions that were made.

Clear presentation of calculation of size of surge tank and pump. ____ 0-10 pts
Clear presentation of other factors to consider, e.g. reliability of the system, contingency plans for breakdowns, etc. ________ 0-5 pts
Operator monitoring and control system design. _______ 0-10 pts

Rationale total pts: ________

Up to 25 pts. - Presentation.

Presentation was organized and kept to time of 5-10 minutes. _______ 0-5 pts
Labor was divided as follows:
Project Engineer: Organized and introduced the deliverable with an overview of the solution and the budget. ______0-5 pts
Process Engineer(s): Explained calculations and innovations clearly. _______ 0-5 pts
Design Engineer: Elaborated on monitoring/control system and other design features. Block Flow diagram clear. ____0-5 pts
Audiovisual aids made presentation easy to understand. ______ 0-5 pts

Presentation total pts: _______

Final Point Total awarded by panel: ____________

Students will also evaluate each other in their engineering group by awarding points from 1 to 20 for their participation and the effort they put into the final product. The teacher will add 5 points based on observing the effort of the individuals in each group.

Scan Am Fish Farms

Business Profile:

Scan Am Fish Farms has over ten years experience in growing salmon in pens floating in salt water environments. It is an international company with operations in both the U.S. and Canada. They raise Atlantic salmon which are marketed on the West Coast and in Japan. The fish are of premium quality and are not frozen but shipped fresh to discriminating buyers of top quality seafood.

Scan Am's U.S. operation markets approximately three and one half million pounds of salmon per year as does their Canadian subsidiary. In Canada, in addition to growing the salmon, they have the biggest salmon hatchery on the West Coast. The company sells smolt to their competitors, as well as raising their own stock.

In the U.S. they have approximately thirty employees and in Canada, on Vancouver Island, they have nearly one hundred and forty employees. Most of their employees have been with the company for a substantial amount of time because of the excellent working conditions offered. The employees need skills in communication, use of computers, understanding of how to use basic tools, handling small boats, and teamwork.

Workplace Applications Informational Interview

Business: Scan Am Fish Farms
Address: P.O. Box 669
Anacortes, WA 98221-0669

Contact: Lou Wiese-Hansen
Phone: (360) 293-9228
Date of Visit: Nov. 14, 1995

****

Management/Human Resources Questions

Primary products/services: Fresh Atlantic salmon

What kind of person are you looking for? (personal attributes - employability)
- Ability to function as a team member.
- Honest
- Responsible

How do you announce employment opening/recruitment notices? Call supporting education facilities and word of mouth.

What kind of pre-screening do you do? (education/experience/other) Prior experience with fish, basic education skills, fish-related education and scuba diving experience.

What type of interviewing do you do? We use a team interview approach.

What are your most common reasons for terminating an employee? Lack of responsibility, not showing up for work.

What are the occupation titles within your workforce?
- Fish technician
- Fish manager
- Site manager

What are the skills needed in five years? (workforce of the future)
- Computer skills
- Writing skills
- Water quality testing skills

What type of retraining do you do? Workshops on technical topics.

What percentage of your workforce has a four year degree? 5%; two year degree? 50%; High school diploma only? 45%; Not high school graduates? 0%

What kind of accommodations do you make for people with disabilities? None -- because of working conditions and requirements of the job.

What is the role of employee organizations/unions in your company? No employee organizations.

First Line Supervisor Questions

Primary products/services: *same as above*

What kind of person are you looking for? *same as above*

What type of retraining do you do? *same as above*

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Boat driving, air compressors (diving), winches, computers and microscopes.

How would you recommend we teach the work ethic to students? Reliability -- holding students accountable.

What is the one thing you wish we would teach our students? Responsibility and all that it entails- honesty, integrity, attendance.

What is the most valuable skill an employee can bring to your department? Experience, team player, aptitude for learning.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? basic education -- 3 Rs

What do you foresee to be the "future trends" in your business area? Lowering of production costs

Employee Questions (Site Manager - 11 years on the job)

What do you like most about your job? Outdoors, working with wildlife.

What do you like least about your job? Paperwork and record keeping.

How did you choose this particular line of work? Interested from my youth.

What classes did you take in school that were most helpful? Job related classes.

What classes have been the least helpful? Humanities.

What would be a problem situation that you might face in your daily work? How would you handle it? Weather, seals, holes in nets. Respond by troubleshooting.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Math and writing skills.

Could you describe 3-5 specific skills that you use regularly on your job?

- Science first
- Math second
- Communication skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Salmon Farming in Washington

Submitted By: Harlan Kredit (teacher partner) **School:** Lynden Christian High School
Fred Wiley (teacher partner) Ferndale High School

Pete Granger (business partner) **Business:** Washington Farmed Salmon Commission

Career Pathway Focus: Science & Natural Resources
Subject Area: Science **Category:** Aquaculture
Suggested Grade Level: 10 - 12

Skills Being Applied ***(the workplace application)*****:**
Technical writing and reading, problem solving, interpretation of data, graphing, estimating, teamwork, computer skills, following instructions, resource management, adaptability/flexibility, self-directedness, product control, data collection and analysis.

WA State Student Learning Goal: #1 and #2
Essential Student Learning Element(s):
- Communication #2 (listens and views for understanding)
- Communication #4 (effective presentations using a variety of skills & communication strategies)
- Communication #5 (expresses ideas responsibly)

Amount of Time Needed to Complete Lesson: One 55 minute class period with a half day follow up on the next day.

Materials Needed:
☐ VCR and TV
☐ Video of employee interview (taken during the site visit)

Lesson Overview:
This lesson was developed to provide biology students (or other related sciences) with information about salmon farming in Washington State. There are a number of skills learned in science classes that are applied in this field of work: experimentation, problem solving, data collection, data interpretation. In addition to learning how scientific skills apply to a workplace, we will explore the social and economical viewpoints of pen-raised salmon versus the wild salmon industry.

Directions for Lesson:
A detailed description about the salmon farming industry in Washington will be presented by Pete Granger, Executive Director of the Washington Farmed Salmon Commission. He will also provide a discussion about the pros and cons of pen raised versus wild salmon, addressing concerns related to the environment, pollution, disease, aesthetics and water quality. He will conclude with a description of the job opportunities in this growing field and the science related skills which are necessary for employment in this business.

The Day Prior To Visit:

1. Explain the procedure for the visit. Give a short introduction to the topic of salmon farming and information about the guest speaker.

2. As homework, assign two questions to the students:
    - A. Ask members of your family if they have ever heard of the salmon farming industry and if they have ever eaten a farmed salmon.
    - B. Write out two questions you have for our guest speaker, one relating to the process of salmon farming, the other relating to employment in this industry.

The Day of the Visit:

1. Introduction by teacher.
2. Background on the company.
3. Show video interview of Scan Am employee and the job site.
4. Discuss pros and cons of issues related to environmental, salmon industry, aesthetic, and market place concerns.
5. Discuss characteristics of a successful employee in the fish farming business.
6. Answer questions from students (from their homework as well as from the presentation).

The Day After the Visit:

1. Mini-debate (see assessment below)
2. Conclude with a brief statement regarding the industry and how science skills are vital to obtaining a position within this industry.

Suggested Assessment:

Mini-debate: On the day after the presentation randomly split the class into two groups. Half of the class will take the pro-salmon farming position, the other half will take the pro-wild salmon position (or the anti-salmon farming side). Give the groups 10 minutes to get a reasonable argument together, choose their spokesperson and organize themselves. Remind students to include information gained from the guest speaker's presentation.

Stage a mini-debate for 10 - 15 minutes to explore the issues in some detail.

TECHNOLOGY & INDUSTRY

TECH PREP

CAREER PATHWAYS

Intalco Aluminum Corporation

Business Profile

Intalco Aluminum Corporation is one of the nation's most modern and energy-efficient aluminum reduction plants. Intalco occupies 320 acres near Ferndale, Washington and is the largest private employer in the area with approximately 1,100 people operating the plant.

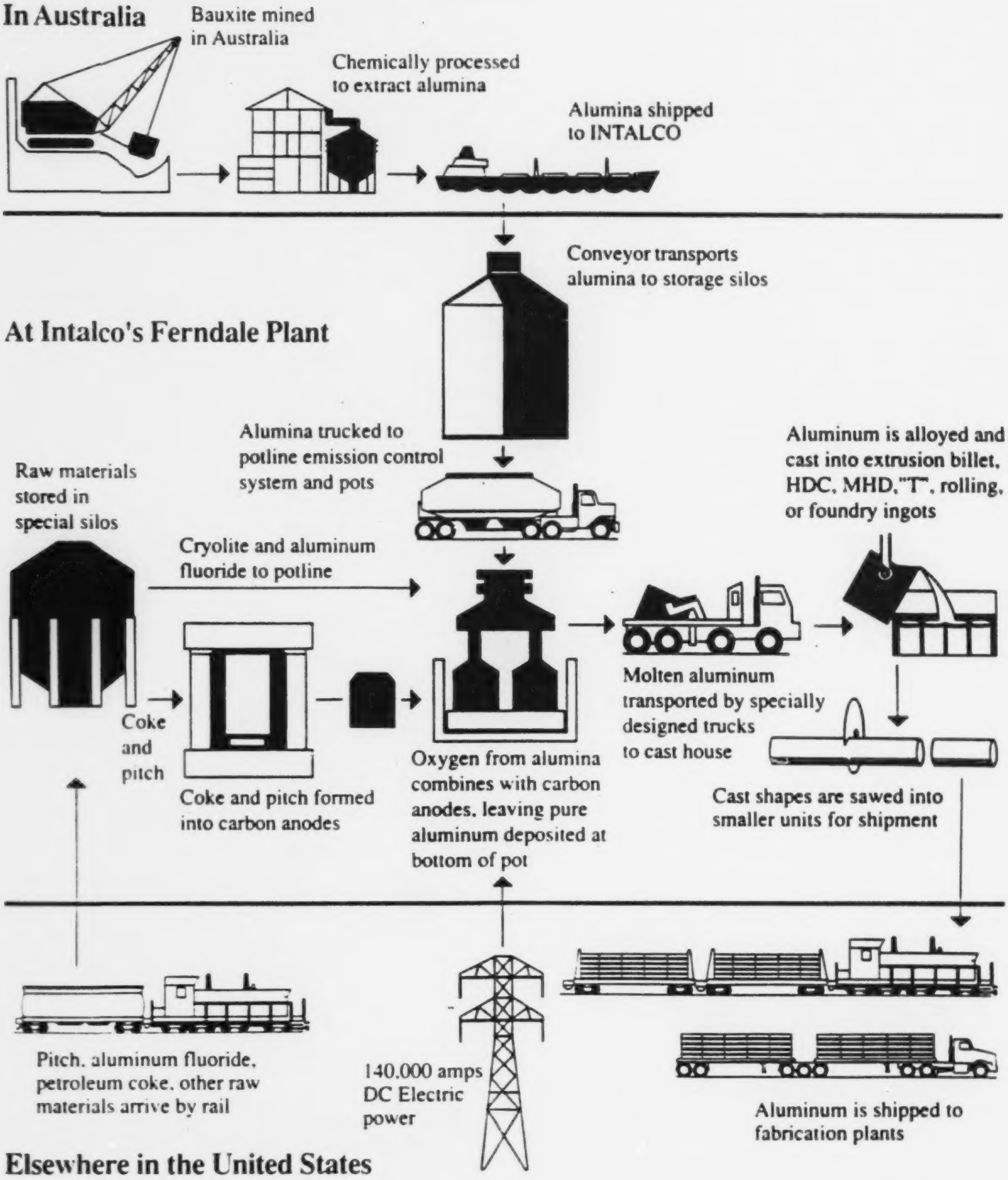
Throughout the plant, Intalco takes innovative approaches to managing its human resources. Every facility in the plant develops its own plans for maximizing teamwork. In some facilities, there are self-directed work teams, while other facilities have fostered teamwork through more conventional approaches.

The Intalco plant can be divided into several separate facilities.
Metal is produced in the reduction operation which has the capacity to produce 300,000 tons of metal per year. The reduction process operates 720 pots at 1,000 DC Volts and 140,000 Amps. This process can consume up to 465 Megawatts of electrical power. The Potlines are supported by the Carbon Plant that processes about 104,000 tons of carbon per year to replace anodes consumed during the reduction process. The molten aluminum is transported to the Casthouse. The casting operation can produce Slab, Billet, T-ingot and small Cast Ingots. The Environmental Department, Maintenance & Engineering, and other Service Groups, support plant operations making Intalco efficient and environmentally balanced.

Intalco produces premium, top-quality metal at the lowest possible price. It attracts customers, wins their respect and creates lasting partnerships through superior customer service. It is a preferred supplier of primary aluminum and winner of major awards for consistent quality, service and delivery.

Over thirty different shapes and sizes and 160 different alloy specifications are made, to be forged, bent, cast, stamped, extruded, rolled, cut and drawn into a wide variety of products by our customers. The world's leading automobile manufactures use cast billet for high-stress, complex structural parts and intricate fluid/air containment parts. Many cars of today and tomorrow will have wheels and components for engines, air-conditioning, fuel-delivery, anti-lock braking and suspension systems crafted from Intalco aluminum. Other billet and slab metal is used by the transportation, food packaging and building industry. The remaining metal in the form of T-ingot and cast ingot is consumed for remelting by fabrication and casting industries for all types of aluminum products in the North American and Asian markets.

FROM ORE TO ALUMINUM VIA INTALCO


In Australia
Bauxite mined in Australia
Chemically processed to extract alumina
Alumina shipped to INTALCO
Conveyor transports alumina to storage silos
At Intalco's Ferndale Plant
Alumina trucked to potline emission control system and pots
Aluminum is alloyed and cast into extrusion billet, HDC, MHD,"T", rolling, or foundry ingots
Raw materials stored in special silos
Cryolite and aluminum fluoride to potline
Coke and pitch
Coke and pitch formed into carbon anodes
Oxygen from alumina combines with carbon anodes, leaving pure aluminum deposited at bottom of pot
Molten aluminum transported by specially designed trucks to cast house
Cast shapes are sawed into smaller units for shipment
Pitch, aluminum fluoride, petroleum coke, other raw materials arrive by rail
140,000 amps DC Electric power
Aluminum is shipped to fabrication plants
Elsewhere in the United States

Workplace Applications Informational Interview

Business: Intalco Aluminum Corporation
Address: P.O. Box 937
Ferndale, WA 98248-0937

Contact: Werner Gerhardt
Phone: 384-7252
Date of Visit: October 19, 1995

* * *

Management/Human Resources Questions

Note: all questions were answered within a roundtable discussion which included the manager, two planners, and five craftsmen.

Primary products/services: The manager of human resources in this division of the plant is the Maintenance and Engineering Manager, Werner Gerhardt. The primary product or service is the hiring and management of the personnel who maintain all plant facilities and operations. The personnel and budget management must provide production capacity of the plant.

What kind of person are you looking for? (personal attributes - employability)
We look for highly motivated people who handle themselves well and can work in a team environment. Evidence of good attendance and concern for job safety are important, as well as basic skills in mathematics, writing, and communication.

How do you announce employment opening/recruitment notices? The plant apprenticeship program accounts for most hires (around 70%), so openings are announced through plant notices or an in-house open forum. Sometimes it is necessary to advertise for outside hiring for a specific craft.

What kind of pre-screening do you do? (education/experience/other) A preliminary screening test and basic skills test are used. Job experience pre-screening is taken care of by selecting current Intalco employees with job experience somewhere in the plant for an apprenticeship.

What type of interviewing do you do?
Progressive interviews are used with interview teams at each stage.

What are your most common reasons for terminating an employee? Violation of plant policies is the most common reason for terminating an employee, but an automatic mini-arbitration with the union occurs before any termination.

What are the occupation titles within your workforce?
Occupation titles include planners, electricians, millwrights, and instrument technicians.

What are the skills needed in five years? (workforce of the future) The skills needed in five years will be communication skills, computer skills, and basic math and writing skills.

What type of retraining do you do? When retraining is required for new equipment, those groups who will be using the equipment will be trained together on-site, although sometimes off-site specialized training is required. Retraining also includes team skills training for all employees moving into team work situations.

What percentage of your workforce has a four year degree? (*referring to this department*) not sure, few; 2 year degree? about 5%; High school diploma only? 100%; Not high school graduates? possible, not probable.

What kind of accommodations do you make for people with disabilities? Hiring disabled workers is based on whether or not they can do the job, not whether or not they are disabled. If an employee is injured on the job, accommodating job assignments are found, or light-duty work if it is a short term disability.

What is the role of employee organizations/unions in your company?
The employees are fully unionized.

First Line Supervisor Questions

Note: all questions were answered within a roundtable discussion including two planners.

Primary products/services: The front-line supervisor position title is Maintenance Planner. The primary product or service is the scheduling of materials, equipment and personnel to maintain production capacity. The planner also purchases the equipment required to maintain production capacity.

What kind of person are you looking for? (personal attributes - employability) We look for highly motivated people who have the best trade and technical skills the job requires. As mentioned earlier, it is important for applicants to be able to work in a team environment, have good attendance, concern for job safety, and basic skills in mathematics, writing, and communication.

What type of retraining do you do? When retraining is required for new equipment, those groups who will be using the equipment will be trained together on-site, although sometimes off-site specialized training is required. Retraining also includes team skills training for all employees moving into team work situations.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? There is computer-operated equipment in all areas, as well as extensive use of minicomputers in the electrical field. Most equipment is craft specific.

How would you recommend we teach the work ethic to students? Believing that work ethic is taught at home and supported in school, high expectations and performance feedback in a disciplined environment should be used in schools to support a good work ethic.

What is the one thing you wish we would teach our students? The one thing you wish we would teach our students is work ethic, with a strong sense of accountability and responsibility.

What is the most valuable skill an employee can bring to your department? (why)
Communication and people skills are most valuable skills an employee can bring to our department because this will allow the group to work as a team and increase productivity. Confidence and a good attitude are the other necessary ingredients.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Working individually is becoming obsolete, but it is difficult to identify what no longer needs to be taught, besides the slide rule. You cannot throw out the basics, especially in math and writing.

What do you foresee to be the "future trends" in your business area? The future trends seem to be a greater dependency on computers. A team approach to work is an increasing occurrence as well, creating greater "people involvement," with multi-skilled groups being more independent, even defining their own work tasks.

Employee Questions **(electrician, apprentice, machinist - 1-10yrs.)**
Note: all questions were answered within a roundtable discussion including five craftsmen.

What do you like most about your job? The variety of tasks, not stuck in the same situation everyday. The open-endedness of the job allows for continual growth. Teamwork provides better communication and ownership of the tasks.

What do you like least about your job? The menial tasks, "changing light bulbs" type of work, the physical discomfort in some situations, and having to deal with people with bad attitudes.

How did you choose this particular line of work? One employee chose this line of work after tiring of menial labor he was doing at the plant, and applied for the apprenticeship program. Another employee was taking classes at the technical college machine shop because of an interest in craft work, while another became interested in craft work during his high school shop classes.

What classes did you take in school that were most helpful? Basic electronics and radio, shop classes, and typing in high school were helpful; machine shop at a technical college helped in all crafts. Mathematics courses in college were also noted by the apprentice electrician.

What classes have been the least helpful? It was difficult to identify specific classes, but any class which lacked structure and clear guidelines were seen as being the least helpful.

What would be a problem situation that you might face in your daily work? How would you handle it? In the apprenticeship program, problems that come up involving technical questions or skills are taken to the master craftsmen. Problems situations also come up involving "bad attitudes" with coworkers, which are addressed one-on-one, or within a team environment if necessary. Anything that interferes with production capacity presents a problem situation.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Everything. Many wished they would have pushed themselves harder in mathematics.

Could you describe 3-5 specific skills that you use regularly on your job?

- Thinking skills such as logical reasoning and problem solving, like those used in solving algebra word problems.
- Knowing what resources to access and how to access them to find a problem solution. "Is the answer to my problem in my machinist's handbook?"
- Basic math skills (fractions, estimation and number sense) right triangle trig, geometry formulas, and working between standard and metric measure.
- Communication of problems, ideas, and solutions to team members verbally and in writing (being able to state the problem or communicate your solution).

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Labor Projection and Planning

Submitted By: Brian Rick (teacher partner)
Werner Gerhardt (business partner)

School: Sehome High School
Business: Intalco Aluminum Corporation

Career Pathway Focus: Technology and Industry
Subject Area: Mathematics, Business
Category: Percents, Data Analysis
Suggested Grade Level: 9-10th

Skills Being Applied ***(the workplace application)*****:**
- reading graphs and interpreting data
- listening for information
- discerning critical and noncritical information
- math computations: basic operations, decimals, percents
- team problem solving
- technical and persuasive writing

WA State Student Learning Goal: #1, 2 and 3
Essential Student Learning Element(s):
- Math #1 (understands and applies the concepts and procedures of mathematics)
- Math #2 (solves problems using mathematics)
- Communication #2 (listens and views for understanding)
- Communication #4 (makes effective presentation using a variety of skills and communication strategies)
- Writing #5 (writes as a member of a team)

Amount of Time Needed to Complete Lesson: One two-hour block was used for a video, presentation by the guest speaker from Intalco Aluminum Corporation, and initial student group work on Planning Team worksheet. A second class period was used to complete the Planning Team worksheets, and a third class period in the computer lab to prepare their proposals. An application problem, Metal Fabrication, can be given at any time during this lesson. Planning a week between each day on this lesson to allowed students time to e-mail Intalco or use other resources to develop more creative solutions.

Materials Needed:
☐ Overtime and Average Work Week charts
☐ Shift Schedule Calendar
☐ 1 page Planning Worksheet
☐ 4 page Planning Team Group Worksheet
☐ Application Problem - Metal Fabrication

Lesson Overview: During the interview with Intalco employees, it was apparent that problem solving and trouble shooting are key workplace application skills. Workers need to be able to "see" a problem, identify several possible solutions and then use good judgment to reach an effective conclusion (workable, feasible, efficient, cost, etc.).

The two main goals of this lesson are to provide students with a "real world" math problem and a problem solving experience where there is no right answer, but a judgment is required. Their solutions gain credibility based on the correct application of mathematics as well as the type of information they used in their computations. Students may find this activity difficult, not because of the skill level of mathematics (arithmetic, fractions, percents), but because they have to discern which numbers are the appropriate numbers to add, multiply, etc.

This lesson clearly demonstrates that knowing how to multiply two numbers is easy, but figuring out which numbers to multiply is really where the mathematics begins.

Directions for Lesson/Activity/Project:

1. This lesson begins with the guest speaker and a video of Intalco Aluminum Corporation to give students on overview of the lesson's context.

2. The students were given the Planning Worksheet and Questions, and the speaker gave some necessary information verbally:
    - Total yearly worker hours needed to maintain plant - 466,957
    - Number of shift workers needed - 25
    - Number of day workers needed - 226

3. The speaker presented the Shift Schedule on the overhead to show what a shift worker's schedule entails (See Shift Schedule: the worker on shift 4 works 1 night, 3 off, 3 days, 1 off, 3 nights, etc.). The speaker then went on to describe the difference between a shift worker (12 hour shifts, job tasks covered 24 hours a day) and a day worker (10 hour shifts). This is a good place to discuss the need for both types of workers, which schedule the students would rather work, etc.

4. Next the Average Work Week chart was placed on overhead to point out that the supervisor who schedules a worker for a 40 hour week can only count on about 35 hours per week. Unscheduled overtime was then brought up with the Percent Overtime chart on the overhead, bringing the 35 hours a week closer to 36 hours per week. This information is important in demonstrating just how confusing the "real" problems can be, that a 40 hour work week is not *really* 40 hours.
   Note: Adjust the above information as needed to emphasize particular skills. The lesson can be modified to reflect employee figures of any business.

5. The Planning Team Group Worksheet was the next task, questions 1-7, with students in heterogeneous groups of three. From this point on the speaker or teacher can wander in and out of group discussions guiding students as needed. As students are completing their first plan for the 8% cut in employee costs (question 7), be aware of the figures they are using, as they have been given a confusing amount of numbers by this time. When the students teams are satisfied with their first proposal, the teacher will read each (without judgment), and then hand the students the next sheet which requires them to develop a second proposal.

6. Depending on resources and time, students could present their proposals to teacher only, the whole class, or to the guest speaker representing the business. Requiring the proposals to be typed, and written in complete sentences, presents students with the challenge of explaining their mathematics without pointing, telling, or demonstrating with a calculator. If time allows, MS Powerpoint would be a great tool for student presentations.

Suggested Assessment:
Assessment can be based on how well the students computations support their proposals, as well as how well the student teams communicated their ideas. Students should be allowed to do some peer assessment, perhaps by nominating the most convincing proposals.

Guest Instructor: Mr. Werner Gerhardt
Manager, Maintenance and Engineering
Intalco Aluminum Corporation

Name ____________________
Team Members____________________
____

Planning Worksheet and Questions

Total worker hours needed yearly to maintain Intalco's plant: __________
Number of shift workers needed: __________
Number of day workers needed: __________

Shift Work Schedule

1. What is a shift worker? ____

____

2. Look carefully at the top large grid, what do you think this represents? ____________________

Use the bottom smaller grid to answer the following:

3. How many days does the shift worker work in a 28 day period? ____________________

4. How many nights does the shift worker work in a 28 day period? ____________________

5. How many total hours does the shift worker work in a 28 day period? ____________________

6. How many total hours does the shift worker work in a 7 day period? ____________________

7. How many total hours does the shift worker work in a 52 week period? ____________________

1996 Worker-Hour Projection

1. How many hours does a 12-hour shift worker work in one year? ____________________

2. How many hours does a 10-hour day worker really work in one year? ____________________

3. Using the figure given from the unscheduled overtime graph, calculate the total number of hours worked per year by all day workers ____________________

4. Adding the total hours worked by all shift workers, what is the total number of hours worked by all maintenance employees in one year? ____________________

5. Is that number equal to the number given in the introduction? Why? ____________________

____

Planning Team Group Worksheet - Page 1

Show the mathematical calculations needed for each question!

You are a Planning Team which will develop the statistics required to make sound business and employment decisions for Intalco Aluminum Corporation. The day workers in your maintenance division earn an average of $18.75 per hour. Shift workers earn an additional 10.5% on top of the day worker hourly rate.

1. Use the correct hourly rate to calculate the average yearly gross income of a day worker.

2. Use the correct hourly rate to calculate the average yearly gross income of a shift worker.

Each employee costs Intalco much more than the hourly wage they earn. Benefits and administrative costs for each maintenance employee makes the average "cost" for Intalco approximately $32.25 per hour. This is referred to as the "loaded rate" per employee.

3. Specifically, what might some of these extra costs be? ______________________________

____

4. Using the loaded rate of $32.25 per hour, what does it cost Intalco per year to employ all of its maintenance employees?

5. How much could Intalco save off its yearly payroll costs by cutting five day workers from its payroll? (Use hourly rate, not the loaded rate.)

6. How much could Intalco save off its yearly payroll costs by cutting five shift workers from its payroll?

Note: questions 7-9 have been compiled on a single page for ease of publication. It is recommended that the questions be used as separate worksheets for student discussion and calculations.

Planning Team Group Worksheet - Page 2

7. As the Maintenance and Engineering Planning Team, it is your job to cut 8% from your employee costs. Devise a plan to make this cut, showing all mathematical calculations which will demonstrate how your plan will save 8% in employee costs. Remember that this plan you will be presenting this plan to your supervisors, and it may mean the loss of jobs, so all calculations must be accurate and clearly written.

When this task is complete, come to the front of the room and to receive your next instructions.

****

Planning Team Group Worksheet - Page 3

Show the mathematical calculations needed for each question!

8. Sorry, your proposal was not satisfactory. You must now devise a second plan which will cut 8% in employee costs in a different manner. When this second plan is complete and all necessary calculations are provided below, address the problem on the reverse side.

****

Planning Team Group Worksheet - Page 4

9. Choose a plan, this second one or your original plan, which you feel is best for the company. Provide a written statement in support of your choice, making sure your reasons are clearly stated and justified.

Guest Instructor: Mr. Werner Gerhardt
Manager, Maintenance and Engineering
Intalco Aluminum Corporation

Name KEY
Team Members ____

Planning Worksheet and Questions

Total worker hours needed yearly to maintain Intalco's plant: 466,957
Number of shift workers needed: 25
Number of day workers needed: 226

Shift Work Schedule

1. What is a shift worker? works 12 hour shifts, some during the day, some in the night

2. Look carefully at the top large grid, what do you think this represents? 1 year calendar

Use the bottom smaller grid to answer the following:

3. How many days does the shift worker work in a 28 day period? 7

4. How many nights does the shift worker work in a 28 day period? 7

5. How many total hours does the shift worker work in a 28 day period? 168

6. How many total hours does the shift worker work in a 7 day period? 42

7. How many total hours does the shift worker work in a 52 week period? 2184

1996 Worker-Hour Projection

1. How many hours does a 12-hour shift worker work in one year? 2184

2. How many hours does a 10-hour day worker really work in one year? 1749

3. Using the figure given from the unscheduled overtime graph, calculate the total number of hours worked per year by all day workers. 1.0234 × 1749 × 226 = 404,523

4. Adding the total hours worked by all shift workers, what is the total number of hours worked by all maintenance employees in one year? 25 × 2184 = 54,600 ; 54,600 + 404,523 = 459,123

5. Is that number equal to the number given in the introduction? Why? No, overtime and time lost

35 × 226 × 52 = 411908
42 × 25 × 52 = 54,600
466,508

Planning Team Group Worksheet - Page 1

Show the mathematical calculations needed for each question!

You are a Planning Team which will develop the statistics required to make sound business and employment decisions for Intalco Aluminum Corporation. The day workers in your maintenance division earn an average of $18.75 per hour. Shift workers earn an additional 10.5% on top of the day worker hourly rate.

1. Use the correct hourly rate to calculate the average yearly gross income of a day worker.

18.75 × 40× 52 = 39,000

18.75 × 40 × 52 × 1.0234 = 39,912.6 with overtime

2. Use the correct hourly rate to calculate the average yearly gross income of a shift worker.

18.75 × 42× 52 × 1.105 = 45,250

OR 46,309 with Overtime

Each employee costs Intalco much more than the hourly wage they earn. Benefits and administrative costs for each maintenance employee makes the average "cost" for Intalco approximately $32.25 per hour. This is referred to as the "loaded rate" per employee.

3. Specifically, what might some of these extra costs be? vacation, holidays, medical, workers comp, shift costs

4. Using the loaded rate of $32.25 per hour, what does it cost Intalco per year to employ all of its maintenance employees? $32.25 × 459123 = $14,806,717

5. How much could Intalco save off its yearly payroll costs by cutting five day workers from its payroll? (Use hourly rate, not the loaded rate.)

$195,000

18.75 × 2080 = 39,000

× 5

195,000

6. How much could Intalco save off its yearly payroll costs by cutting five shift workers from its payroll?

$ 226,249

INTALCO

Post Office Box 937
Ferndale, WA 98248
(206) 384-7296

INTER OFFICE MEMORANDUM

Date: June 13, 1995

To: W. Gerhardt

cc: J. Frederick
Maint. General Supervisors
Maint. Supervisors
P. Roberts

From: Al Saab

Subject: 1996 MAN-HOUR PROJECTION

Maintenance man-hour projections for 1996, for budget purposes are as follows:

1. 12 Hour shift worker (52 wks @ 42 hours)

2. 10/8 Hour workers:

52 weeks @ 40 hours =	
Minus 3 Electives	-30 Hrs/Yr
Minus Vacation	-130 Hrs/Yr
Minus Holidays (7)	- 70 Hrs/Yr
Minus lost time absences and Shift Coverage	-101 Hrs/Yr
	-331 Hrs/Yr
Productive Hours	

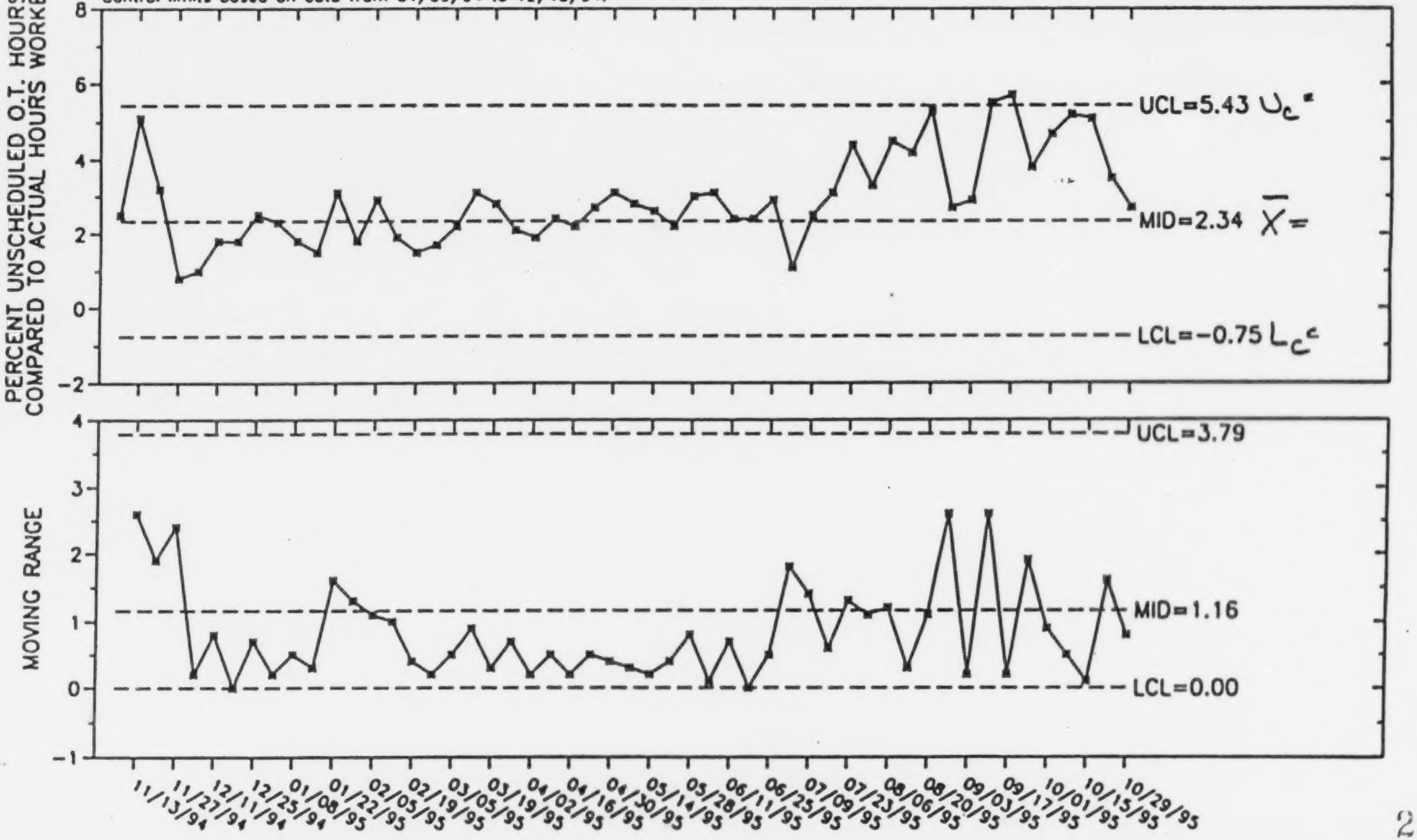
The man-power calculations are determined by using;

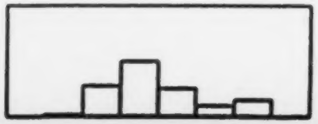
1. Average hours per man which uses total payroll hours paid minus overtime hours. (See attached charts-factor8.ap.spf & factor9.ap.spf)

2. Loss of scheduled time department summary, report PA.5570. (See attached chart als.lostime.ap.894.spf)

INTALCO ALUMINUM CORPORATION
AN ALUMAX COMPANY

MAINTENANCE UNIT EMPLOYEES' UNSCHEDULED OVERTIME (DEPT. 894)
X-MR CHART USING WEEKLY DATA
Control limits based on data from 01/09/94 to 12/18/94.



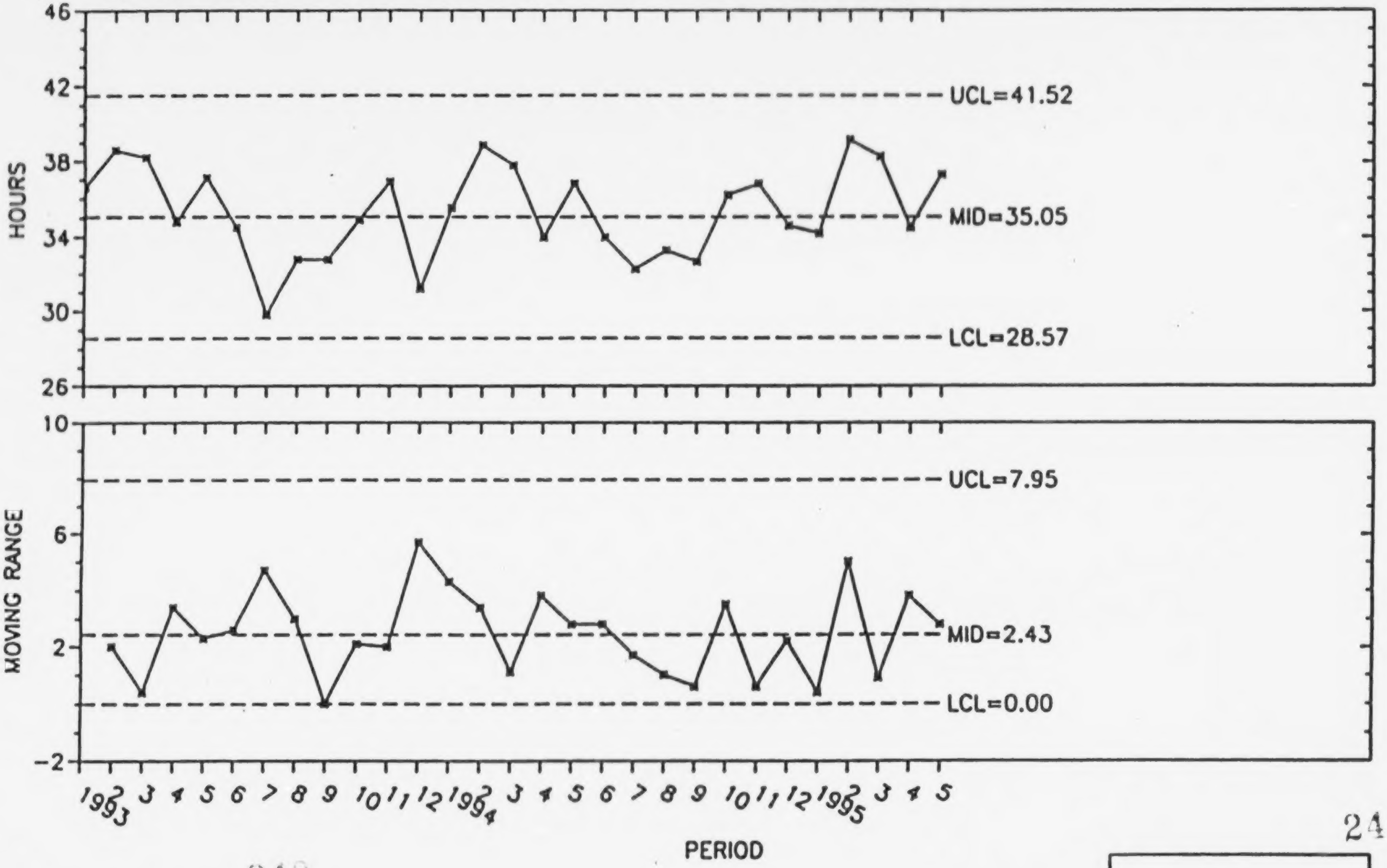


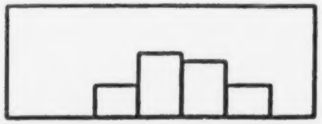
prod.hr.mn.ot.spf 11/02/95
Maintenance Department

FACTOR #9 – AVERAGE WORK WEEK

X-Individual chart using period end data
Control limits are set using 93/94 data
Historical Data: (88-35, 89-36, 90-36, 91-36, 92-35, 93-35, 94-35)

INTALCO ALUMINUM CORPORATION
AN ALUMAX COMPANY





factor9.op.spl 06/14/95
MAINTENANCE

Intalco Aluminum Corporation

1995 Shift Schedule - 12 Hour

SHIFT 4

Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
													J	②	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	F	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	M	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	A	2	3	4	5	6	7	8	9
10	11	12	13	⑭	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	M	2	3	4	5	6	7
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	㉙	30	31	J	2	3	4
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	J	2
3	④	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	A	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
28	29	30	31	S	2	3	④	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	O	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	N	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
20	21	22	㉓	㉔	25	26	27	28	29	30	D	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	㉕	26	27	28	29	30	31														

○ = Intalco Observed Holidays

Days	2	2	2	2	4	4	4	1	1	1	1	3	3	3	4	4	4	4	2	2	2	3	3	3	3	1	1	1
Nights	4	1	1	1	3	3	3	3	4	4	4	2	2	2	2	3	3	3	1	1	1	1	2	2	2	4	4	4
Off	1	4	4	4	1	1	1	4	3	3	3	1	1	1	1	1	1	1	4	4	4	4	4	4	4	3	3	3
Off	3	3	3	3	2	2	2	2	2	2	2	4	4	4	3	2	2	2	3	3	3	2	1	1	1	2	2	2

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Application Problem - Metal Fabrication

Submitted By: Brian Rick (teacher partner) **School:** Sehome High School
Werner Gerhardt (business partner) **Business:** Intalco Aluminum Corporation

Career Pathway Focus: Technology and Industry
Subject Area: Mathematics **Category:** Math/Geometry
Suggested Grade Level: 9-10

Skills Being Applied ***(the workplace application)*****:**
- estimating
- computations with fractions and decimals
- using geometric formulas
- visual-spatial skills
- problem solving

WA State Student Learning Goal: #2
Essential Student Learning Element(s):
Math #1 (understands and applies the concepts and procedures of mathematics)

Amount of Time Needed to Complete Lesson: 1 class period

Materials Needed:
☐ 1 page handout
☐ Checkers or any small disks can be used to help students "see" possible solutions.

Lesson Overview:
This is a sub-lesson of the Labor Projection and Planning Lesson but can be used as a quick math application on its own. It presents a real-world situation requiring the computations involved with the fabrication of circular plates.

Directions for Lesson/Activity/Project:

This application problem is designed to be completed by students working in pairs, with the teacher working as a facilitator. It was preceded by a video from the Intalco Aluminum Corporation showing people doing similar tasks on the job. Class discussion after the second question would be appropriate. The discussion could stimulate thought about the variable solutions proposed and any estimations used in the computations.

Extensions: comparing the weights of the two materials leads to a discussion of the benefits of one material over the other; using shapes other than circles can lead to an introduction of tessellations.

Suggested Assessment:

Student pairs should exchange papers upon completion, or get work in a pair of pairs to compare solutions. The final numbers for each question will vary because of computation errors and because of different solution methods. Guide discussions to evaluation of different solution methods, e.g. " Is the best solution the one that uses the least amount of material?" Consider peer assessment or self-assessment based on what the students have learned about their solutions following discussion.

Metal Fabrication Questions

Show the mathematical calculations needed for each question!

1. A mechanic needs to make twenty-two 9 ¾ inch diameter circular shapes out of a ¼ inch thick steel plate. Disregarding the loss of material from the width of the saw blade, how big of a plate does she need to order if she wants to keep costs down by ordering the smallest possible size?

2. She will need to order a plate larger than the one above to allow for a loss of material during the cutting (the saw blade itself has a width of 1/8 inch). What would be a reasonable size of plate for her to order to account for this loss factor? This information may be used in the future to order a large number of steel plates, so calculate this number as accurately as possible.

3. Because the mechanic will need to transport the circular shapes on a forklift to a different location once they are cut, she needs to find the weight of each plate and the total weight of all plates. If ¼ inch steel plate weighs 10.1 pounds per square foot, find these weights.

4. Aluminum weighs only 3.3 pounds per square foot. How much would the twenty-two circular shapes weigh if fabricated from aluminum?

Workplace Applications Informational Interview

Business: Intalco Aluminum Corporation
Address: P.O. Box 937
Ferndale, WA 98248-0937

Contact: Joe Rieg
Phone: (360) 384-7061
Date of Visit: October, 1995

* * *

Management/Human Resources Questions

Primary products/services: Premium, top-quality metal (aluminum).

What kind of person are you looking for? (personal attributes - employability)

How do you announce employment opening/recruitment notices? Employment Security/Job Service Center and the local newspapers.

What kind of pre-screening do you do? (education/experience/other) A preliminary screening test and basic skills test are used. Require a minimum of high school diploma or G.E.D. Screen for math skills (problem solving) and English.

What type of interviewing do you do?
Progressive interviews are used with interview teams at each stage. Interview teams include supervisors and hourly employees.

What are your most common reasons for terminating an employee? Lack of interpersonal skills; unable to work effectively with their co-workers or team members.

What are the occupation titles within your workforce?

What are the skills needed in five years? (workforce of the future) The skills needed in five years will be communication skills, computer skills, and basic math and writing skills. The ability to continually learn will be critical.

What type of retraining do you do?

What percentage of your workforce has a four year degree? 20-25%; 2 year degree? about 5%; High school diploma only? 50%; Not high school graduates?

What kind of accommodations do you make for people with disabilities? Hiring disabled workers is based on whether or not they can do the job, not whether or not they are disabled. If an employee is injured on the job, accommodating job assignments are found, or light-duty work if it is a short term disability.

What is the role of employee organizations/unions in your company?
The employees are fully unionized. An excellent system.

Could you describe 3-5 specific skills that you use regularly on your job?
- Problem solving skills
- Basic math skills
- Reading
- Understanding systems

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Time Series Graphs as Improvement Tools in Industry

Submitted By: John Freal (teacher partner)
Joe Rieg (business partner)
School: Blaine High School
Business: Intalco Aluminum Corp.

Career Pathway Focus: Technology & Industry
Subject Area: Mathematics
Category: Algebra/Graphing
Suggested Grade Level: 8th-11th

Skills Being Applied (***the workplace application***)**:**
- Interprets and communicates information (SCANS)
- Interprets graphical information as a basis for decision-making

WA State Student Learning Goal: #2
Essential Student Learning Element(s):
- ♦ Math #2 (solve problems)
- ♦ Math #3 (uses mathematical reasoning)
- ♦ Math #5 (makes mathematical connections)

Student Learning Objectives for This Lesson:
- Knows how to organize and display data in tables, charts, and graphs as appropriate.
- Organizes mathematical information.
- Uses mathematics in job-related applications.
- Understands and uses coordinate grids.

Amount of Time Needed to Complete Lesson: one class period is sufficient, but the lesson could easily be extended to several class periods, especially if spreadsheet technology is used.

Materials Needed:
- ☐ Meaningful time-series data gathered from business and industry (samples attached)
- ☐ Graph paper
- ☐ Rulers

Lesson Overview:
Often in the workplace decisions need to be made based on data. Even though opinions and guesses sometimes have their place, most meaningful decisions need to be based on data. Trends in data if often easier to understand in a graph than in a table. In this lesson students plot time series data on a coordinate graph. They must determine the scales to be used and interpret any trends indicated by the graphs.

Directions for Lesson/Activity/Project:
Distribute data to students; encourage them to scan the information to determine scales and best use of graph paper. Spreadsheet can be used as an extension after graphs have done "by hand."

1. Graph the data provided with time as the x-coordinate.
2. Calculate the mean of the y-data as an aid in interpretation.
3. Write 3 conclusions based on the graphed data.

Suggested Assessment: Scoring rubric for completed graphs
1 = Scales proportional and labeled, graph titled, graph covers at least 50% of the paper; meaningful trends mentioned such as extreme points, increases or decreases, and nonrandom patterns, including cycles and distances from the average.

2 = One element or two minor elements from above missing.

3 = Three or more elements from above missing.

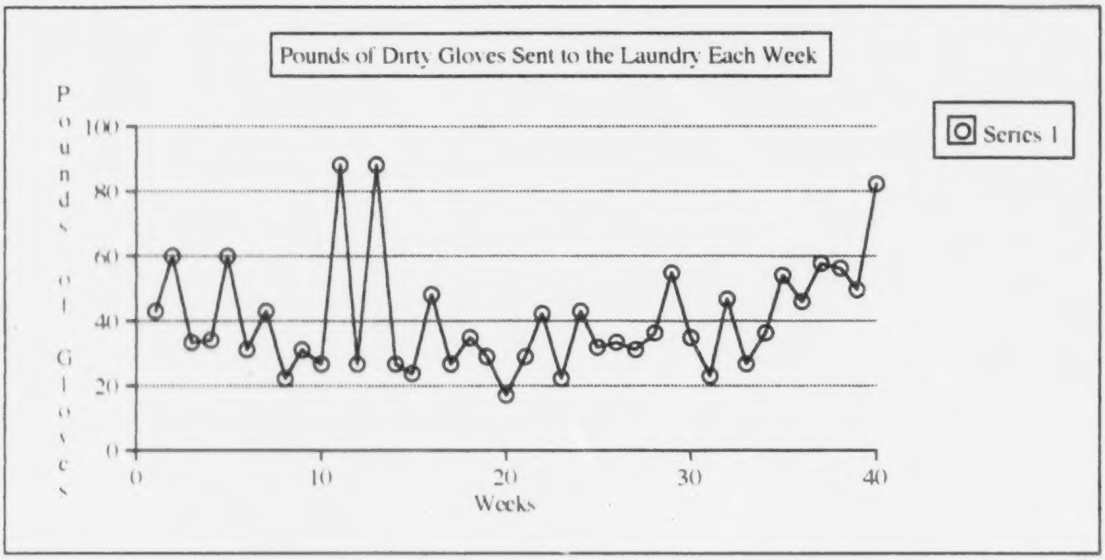
Time in weeks	Pounds of dirty gloves sent to laundry service	Number of phone calls for computer help
1	43	146
2	60	220
3	33	186
4	34	235
5	60	192
6	31	229
7	43	256
8	22	208
9	31	248
10	27	82
11	88	150
12	27	196
13	88	254
14	27	202
15	24	161
16	48	207
17	27	130
18	35	76
19	29	239
20	17	241
21	29	185
22	42	202
23	22	198
24	43	222
25	32	225
26	33	340
27	31	312
28	36	298
29	55	240
30	35	230
31	23	293
32	47	202
33	27	208
34	36	226
35	54	197
36	46	207
37	58	71
38	56	144
39	50	257
40	82	212
Average:	40.775	208.175

Example of Conclusions and Graph*:

Conclusions:

1. The average is about 41 pounds per week. Most of the data points are within 20 of the average.
2. Two extreme points occur at weeks 11 and 13.
3. The data shows an upward trend over the last 7 or 8 weeks.

*At least first graph shouls be done by hand.



VECO ENGINEERING, INC.

Business Profile:

For over 24 years, *VECO* has supported the oil, gas, mining and heavy industries with large-scale engineering, construction, operations and maintenance services. *VECO* is Alaska's largest firm with employment in excess of 10,000 people. In 1991, *Engineering New-Record* ranked VECO 55th out of the top 400 US contractors.

VECO purchased Christensen Engineering in Bellingham a year ago and have their local offices in the historic "flat iron" building at Bay St. and Holly. This office employs about 384 people. The company operates both in the US and internationally, offering design and engineering services, project management, construction services, procurement and materials management and QA/QC.

VECO is a diversified company providing innovative services and design solutions which help their clients be more competitive. Services offered include process and project studies, site surveys, process and project engineering specifications, procurement of equipment and materials, plant layout, as well as construction. Assignments have ranged from a few hours of engineering consultation through total project responsibility.

VECO is actively involved in complex projects involving: chemical plants, pharmaceutical companies, communications, industrial buildings, marine facilities, mining facilities, oil and gas facilities, petrochemical plants, power generation, process plants, pulp and paper mills, refineries, roads and bridges, terminals, and utilities.

In the principal engineering disciplines, there is a staff of highly experienced senior design personnel to augment their engineering capabilities. They have computer support in the areas of AutoCAD, AutoTrol, technical design, pipe stress and word processing. The group of experienced professionals has been working as a team for many years, and as such provides a cost effective engineering and design effort to their clients.

VECO is a fully self-sustained company with its own in-house support services that include a reproduction/drawing control department, a computer service/programming department, a fully staffed accounting department, a human resources department, and a communications-traffic support group. The computer services provide support for the engineering and design staff with a wide variety of software appropriate for each engineering discipline.

As of October, 1995 the Bellingham office advertised employment openings in the following departments: administration, advanced controls, civil engineering, drawing control, electrical engineering, instrumentation, computer network engineering, mechanical, piping design, process engineering and project control. Most engineering openings required degrees and 10 or more years of experience. A few openings were temporary. There were three office positions listed which did not require technical experience but did require excellent spelling, grammar and typing skills.

Workplace Applications Informational Interview

Business: VECO Engineering
Address: 1313 Bay Street
Bellingham, WA 98225

Contact: Carolyn Hoepner
Phone: (360) 676-1500
Date of Visit: November 2, 1995

****

Management/Human Resources Questions

Primary products/services: Consulting Engineering Firm - Engineering Contracts.

What kind of person are you looking for? (personal attributes - employability)
- People skills
- Ability to communicate effectively (verbal and written)
- Team player

How do you announce employment opening/recruitment notices? Through thirty different agencies, post internally, advertise in newspaper, Internet, employment security.

What kind of pre-screening do you do? (education/experience/other)
Reference checking, verification of degrees and professional licenses.

What type of interviewing do you do? Primarily our Human Resources department will have one phone interview and then 4-5 individual interviews are conducted with various departments.

What are your most common reasons for terminating an employee?
Poor job performance.

What are the occupation titles within your workforce?
Approximately 50 different job titles; 6-7 types of engineers, designers, drafters, accounting, resource management, MIS (management information systems), etc.

What are the skills needed in five years? (workforce of the future)
- Interpersonal skills
- Computer skills
- Business degree
- Process automation engineering
- High-tech engineering

What type of retraining do you do? Tuition reimbursement for skills upgrade/training.

What percentage of your workforce has a four year degree? 60-70%; 2 year degree? 20%; High School diploma only? 10%; Not high school graduates? 0%

What kind of accommodations do you make for people with disabilities?
I personally do not have a lot of experience with this situation.

What is the role of employee organizations/unions in your company? None

First Line Supervisor Questions

Primary products/services: Complete design services (building, construction, land, farms, oil rigs, oil-water-gas separation facilities).

What kind of person are you looking for? (personal attributes - employability) Self motivated, people skills, group skills, getting along with others, understand client and internal customers, take constructive criticism, strong personality - don't get talked into things.

What type of retraining do you do? (employee basic skills; technical skills)
Occasional in house workshop.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Computer (word for windows, excel, email, simulation software, CAD).

How would you recommend we teach the work ethic to students?
Through the help of parents, experiences, and part-time jobs; not really the schools job.

What is the one thing you wish we would teach our students?
Need to take more technical subjects and get a well rounded knowledge base.

What is the most valuable skill an employee can bring to your department? (Why) Experience, because it gives a different view/perspective and humility - especially for those right out of college.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Shorthand, typing, relax on the history.

What do you foresee to be the "future trends" in your business area?
The world is getting smaller - many companies are going international. Ten years from now, for people in technical fields, it will be odd if they have not been overseas. Everyone should have a second language.

Employee Questions (Process/Chemical Engineer - One year on the job)

What do you like most about your job? Closure - ability to see a project through from start to finish.

What do you like least about your job? Changing the developmental design after the detailed design has begun - usually the result of client choice or change of mind.

How did you choose this particular line of work? Advisors at college and a calculus teacher who really cared about her students.

What classes did you take in school that were most helpful?
High School: chemistry, math, biology, english
College: engineering, chemistry, math, French

What classes have been the least helpful?
Typing, shorthand, history (overrated and stretched out too long), stayed away from home economics classes.

What would be a problem situation that you might face in your daily work? How would you handle it? Missing a deadline (due to changes or being swamped). Work harder or extra hours.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Foreign language, more fun and socializing.

Could you describe 3-5 specific skills that you use regularly on your job?

- Computer skills
- Interpersonal skills
- Research and resource skills - knowing how to find what you need to know.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Student Engineers in Training

Submitted By: Greta Kocol (teacher partner)
Carolyn Hoepner (business partner)

School: Mt. Baker High School
Business: VECO Engineering

Career Pathway Focus: Technology and Industry
Subject Area: Mathematics
Category: Algebra
Suggested Grade Level: 9-12

Skills Being Applied ***(the workplace application)***:

- Problem solving
- Critical thinking
- Following instructions
- Interpersonal skills
- Communication skills

WA State Student Learning Goal: #2 and 4
Essential Student Learning Element(s):

- Math #2 (solves problems using mathematics)
- Math #3 (uses mathematical reasoning)
- Math #4 (communicates knowledge and understanding in mathematical and everyday language)
- Math #5 (makes mathematical connections)

Amount of Time Needed to Complete Lesson: 1 class period with an optional follow-up day

Materials Needed:

- ❑ Examples of engineering work samples to share with students -- sketches, P&I diagrams
- ❑ Business cards for client and consultant help (optional)
- ❑ Engineering paper/pad (optional)
- ❑ Problem handout

Lesson Overview:
This lesson will give the students an opportunity to learn about the life of a process engineer and put themselves in a typical problem solving situation that is encountered on the job. Students will be asked to become an engineer for the next week as they work to construct a design for a client which will meet the requirements of a given situation. The problem can be taken to various levels and students will be rewarded for their extended research of the problem and possible solutions. Students will be encouraged to contact the engineer to clarify information or ask questions about the design or about the requirements. After a week or two each student will be required to turn in their design proposal in a professional form to be reviewed by the engineer for comments and scoring.

Directions for Lesson/Activity/Project:

10 min.: Introduction of guest speaker - Process Engineer from VECO
15 min.: Question/answer period
15 min.: Problem presentation (see packet)
20 min.: Begin work - individual questions

Suggested Assessment:
Project design write-up.

XYZ PROCESSING
BELLINGHAM, WA

FACILITY EXPANSION PROJECT:
WASTE WATER UPGRADE

XYZ W.O. NO. 98244
VECO JOB NO. 951120X

Document Ref. No. 95DEV1a
Issued For Design Development
Rev: 0 , 11/15/95

DOCUMENT REVISION CONTROL

REV.	DATE	BY	CHECKED	APPROVED	ISSUED FOR	REMARKS
0	11/15/95	ckh	ckh	ckh	Development	None

VECO ENGINEERING, INC.
Client W.O.: 98244
VECO Job No.: 951120X
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FACILITY EXPANSION PROJECT:
WASTE WATER UPGRADE

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Engineering Scope of Work

1. GENERAL

This project provides for engineering for the XYZ Processing Facility Expansion Project Waste Water Upgrade. This Engineering Scope of Work summarizes the Project Description, Design Basis, and the Scope of Services provided by Mount Baker Senior High Student Engineers.

Waste water production is cyclical and can vary greatly depending on operations in the facility. This project has been developed to address the increase in waste water production that will be generated as a result of the facility expansion.

2. PROJECT DESCRIPTION

This project has been broken into three phases to provide for :

- sizing of a waste water surge tank
- installation cost of the surge tank
- level/flow control of the surge tank

3. DESIGN BASIS

Three separate areas generate waste water that will be fed to the surge tank. Area 1 produces 5,200 gallons of waste water seven (7) times in a twenty-four (24) hour period. Area 2 produces 1,850 gallons of waste water twelve (12) times in a twenty-four (24) hour period. Area 3 produces 2,780 gallons of waste water ten (10) times in a twenty-four (24) hour period. The surge tank feeds a settling pond at a continuous rate of 60 gallons/minute. Area 1 waste water is pumped to the surge tank at a rate of 100 gallon/minute. Area 2 waste water is pumped to the surge tank at a rate of 50 gallon/minute and Area 3 waste water is pumped to the surge tank at a rate of 40 gallon/minute.

For tank installation cost estimate:

- maximum diameter of a prefabricated tank is 16 feet

• field fabricated tank (without foundation)	$11.20/ft^3
• cost of prefabricated tank (without foundation)	$7.75/ft^3
• freight charge for raw materials	$0.20/lb
• plate steel for field fabrication	25 lb/ft^3 of volume
• foundation installation	$95.50/ft^2 of tank bottom

For control of surge tank level/flow

Surge tank pump is capable of feeding the settling ponds at a rate of 80 gallons/minute. Install level and/or flow control of the surge tank or feed rate to the setting pond.

4. DELIVERABLES

Phase 1:

Block diagram of the process; include major process information on diagram

Required volume of tank

List all assumptions

Phase 2:

Estimated installed cost of surge tank, include tank dimensions (diameter and height/length)

List all assumptions

Phase 3:

Add level and/or flow control methods to block process diagram, list additional required equipment and instrumentation

List all assumptions

5. SCHEDULE

All designs must be submitted on Monday, December 4th, 1995 regardless of status to obtain any credit.

The client (Carolyn Hoepner) will be available for questions via phone at 676-1766 ext. 1910 Tuesday and Wednesday, November 21 and 22 from 7:00 am to 5:00 pm and Monday through Thursday, November 27-30 from 7:00 to 5:00 pm. If there is a conflict with your school/activity schedule you will need to call and leave a message to set up alternate arrangements.

BY ______ DATE ______ PROJECT ______ SHEET NO. ______ OF ______

CHKD. ______ DATE ______ ______ JOB NO. ______

Workplace Applications Informational Interview

Business: VECO
Address: 1313 Bay Street
Bellingham, WA

Contact: Dave Evans
Phone: (360) 676-1500
Date of Visit: Nov. 3, 1995

Management/Human Resources Questions

Primary Products/Services: Engineering consultation service

What kind of person are you looking for? (personal attributes - employability)
- Good interpersonal skills
- Ability to work in a team atmosphere
- Flexibility

How do you announce employment opening/recruitment notices?
All positions are offered through agencies and publication ads.

What kind of pre-screening do you do? (education/experience/other)
1. We look for appropriate education.
2. We do a resume review.

What type of interviewing do you do? (one on one, team interviews, progressive interviews)
We do telephone interviews, supervisor interviews and team interviews.

What are your most common reasons for terminating an employee? Performance issues.

What are the occupation titles within your workforce?
- Buyers
- Drafters
- Administration
- Secretarial
- Planners
- Accounting
- Engineers (various)

What are the skills needed in five years? (workforce of the future)
- Analysis management
- Process automation
- Communication skills
- Flexibility in assignments

What type of retraining do you do? (employee basic skills; technical skills)
The company provides tuition reimbursements for training programs.

What percentage of your workforce has a four year degree? 60-70%; Two year degree? 20%; High School Diploma? 10%; Not high school graduate? 0%

What kind of accommodations do you make for people with disabilities?
The company provides accommodations on as needed basis.

What is the role of employee organizations/unions in your company?
VECO deals directly with professional engineer organizations.

Employee Questions (Process Engineer - 6 years on the job)

What do you like most about your job? Good people and clients to work with; using problem solving skills; able to use leadership skills.

What do you like least about your job? Dealing with people who cannot communicate well.

How did you choose this particular line of work? I enjoyed chemistry and math in school.

What classes did you take in school that were most helpful? Library classes.

What would be a problem situation that you might face in your daily work? How would you handle it? An engineering-related problem. I'd gather information, use technical skills and present results to the group.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? I would have had a more specific goal in mind as to what jobs were available.

Could you describe 3-5 specific skills that you use regularly on your job?

- Mathematics
- Problem analysis
- Written & verbal communication
- Computer technology
- Library science
- Teamwork skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Calculation of Minimum Safe Distances from Emergency Burnoff Flares

Submitted By: James W. Crosetti (teacher partner)
Dave Evans (business partner)

School: Lynden Christian High School
Business: VECO Engineering

Career Pathway Focus: Technology and Industry
Subject Area: Science
Category: Chemistry
Suggested Grade Level: 11-12

Skills Being Applied ***(the workplace application)*****:**
- Problem solving analysis
- Formulation

Amount of Time Needed to Complete Lesson: 1-1.5 periods

Materials Needed:
- ☐ Calculators
- ☐ Formulas
- ☐ Manual on *Disposal of Refinery Wastes - Volume on Atmospheric Emissions* (Chp. 15 - Flares; pages 15.1 through 15.6)

Lesson Overview:
Requires student to consider the possibility of burning off as a flare the methane gas produced in an oil refinery distillation column in an emergency situation. Student must analyze problem to determine what information must be known to proceed stepwise through the problem.

Directions for Lesson/Activity/Project:
- Gather all students around propane torch and discuss the problem of emergency gas flares at a refinery. The chief emission gas is methane with some ethane and propane.
- If flare is set off, discuss danger of radiant burns to equipment and personnel in the vicinity of the flare. Direct student attention to page 15-4 for basic formula, emissivity factors, and maximum permissible heat intensities.
- Discuss page 15-5 for heat release of various scenarios (center of flame is assumed to be about one-third the flare height). Student should be able to solve for distance to flame at this point.
- Draw situation and point out the application of the Pythagorean theorem to solve for a distance on the ground to set emergency distances based on table 15-3.

Suggested Assessment: Students work in teams of two or three. They should provide a narrative about the setting of the problem with a sketch. They should show progression of the problem from selected variables to calculated radial distances to calculated ground distances. Teams can vary in answers depending upon chosen flare lengths, stack heights, and safety zone. Teams can also consider the effect of moderate wind (page 15-6).

MANUAL ON DISPOSAL OF REFINERY WASTES
VOLUME ON ATMOSPHERIC EMISSIONS

CHAPTER 15—FLARES

15.1 Introduction

Refinery flares are special burners used to destroy unavoidable emissions of hydrocarbon and other combustible gases. It is necessary to burn such gases in order to (a) prevent deleterious effects on people, animals, and plants as discussed in Chapters 2, 7, 10, 14, and 16 and (b) comply with federal, state, and municipal regulations as covered in Chapter 3.

The methods available to prevent such emissions or to recover them before they escape are described in Chapters 7, 14, and 16. While these processes can be very efficient, there are always small residual emissions which must be destroyed. In most cases the gases can be burned in a flare, but some gases may require the special incinerators discussed in Chapters 14 and 16.

In addition to these small emissions, the refinery flare must be capable of handling very large releases of hydrocarbons which exceed the capacity of the system for control and recovery. Such releases can occur in emergencies resulting from the failure of equipment or from fires.

Basically a flare system consists of piping to collect the gases, devices to remove entrained liquid, and a terminal burner operating in the open with no provision to recover heat or to treat the combustion products. A typical refinery flare system is illustrated in Figure 15-1. The system consists of the following elements:

1. Flare header from the process units
2. Knockout drums to remove and store condensable and entrained liquids
3. Proprietary seal, drum, or purge gas to prevent flashback
4. Flare stack to raise the burner to the desired height
5. Gas pilots and an igniter
6. Steam injection for smokeless flaring.

Several types of flares are available, but all must operate safely and efficiently under widely varying conditions. The flow of waste gas can range from almost zero, when the only discharges are leakages from relief valves, to very large quantities in emergencies. Further, the required capacity of the flare varies with (a) the crude throughout, (b) the complexity of refining, and (c) the capacity of the recovery system.

Klooster [1]* provides the values in Table 15-1 for the maximum flaring rates from typical process units in a 250,000 barrel per day refinery. This table compares the maximum predicted rates from a minimum cost flaring system with those from a system designed for maximum recovery and minimum flare loss.

It is difficult to design a single flare to handle efficiently such extreme variations in flow, so many systems have two flares. One flare is designed to provide smokeless combustion for the normal flow, the other is activated to handle excess flow resulting from an emergency. There also may be flares designed to serve single specialized units.

15.2 Factors Common to all Systems

There are three main types of flare systems employing elevated flares, ground flares, or burning pits. Each type has advantages, operating problems, and design considerations which will be discussed individually. However, the factors discussed in 15.2.1 through 15.2.10 are common to all three.

Table 15-1—Maximum Expected Flaring Rates from a 250,000 Barrel per Day Refinery

Refinery Process Unit	Maximum Flaring Rate (10^6 pound per hour)	
	Maximum Cost Flare System	Maximum Recovery Flare System
Crude-vacuum	1.80	0.10
Hydro-cracker	0.70	0.20
Fluid catalytic cracker	0.80	0.30
Catalytic reformer	0.50	0.10
Naphtha HDS	0.40	0.10
Distillate HDS	0.30	0.10
Gas Recovery	0.70	0.30

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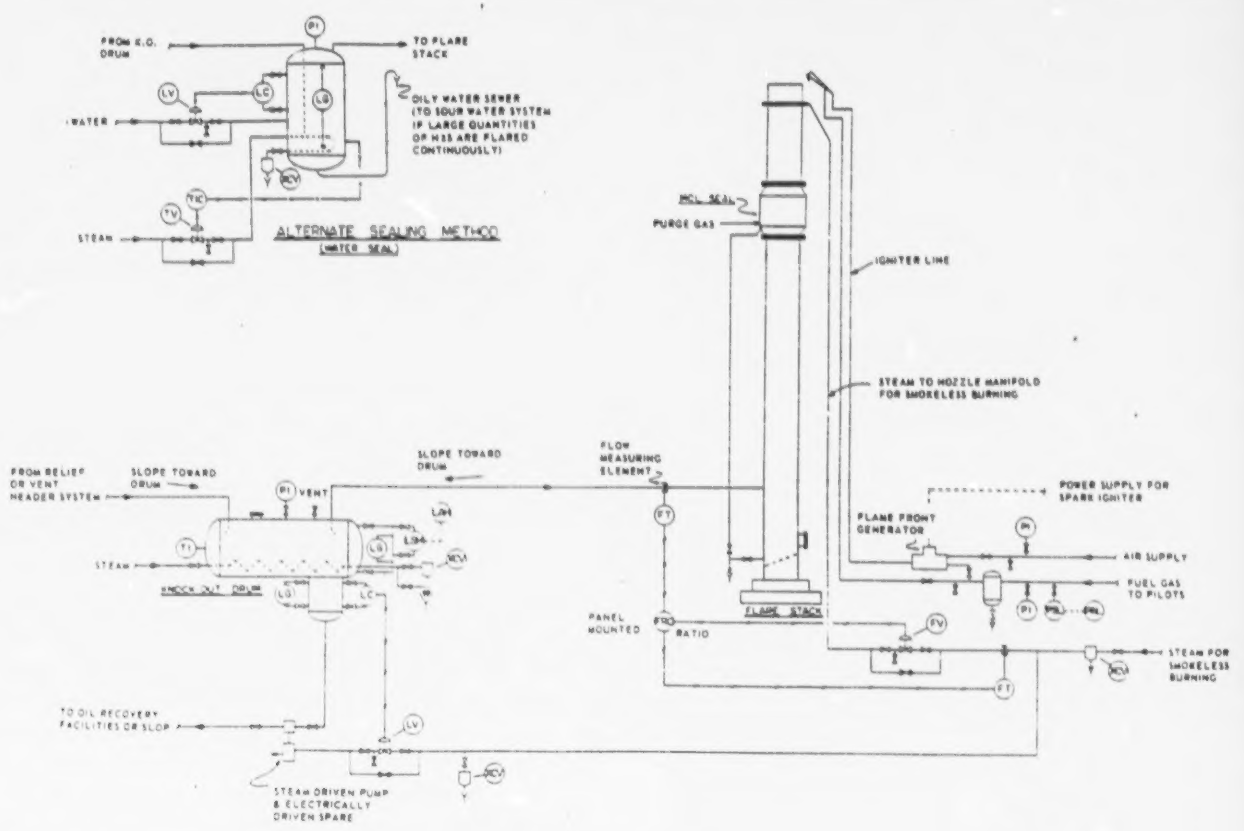
* See reference list at end of text.


FROM K.O. DRUM
TO FLARE STACK
PI
LV
LC
LG
WATER
OILY WATER SEWER (TO SOUR WATER SYSTEM IF LARGE QUANTITIES OF H2S ARE FLARED CONTINUOUSLY)
TIC
TV
STEAM
ALTERNATE SEALING METHOD
(WATER SEAL)
MOL SEAL
PURGE GAS
IGNITER LINE
STEAM TO NOZZLE MANIFOLD FOR SMOKELESS BURNING
FROM RELIEF OR VENT HEADER SYSTEM
SLOPE TOWARD DRUM
VENT
SLOPE TOWARD DRUM
FLOW MEASURING ELEMENT
FT
POWER SUPPLY FOR SPARK IGNITER
FLAME FRONT GENERATOR
AIR SUPPLY
FUEL GAS TO PILOTS
TI
STEAM
LSH
KNOCK OUT DRUM
FLARE STACK
PANEL MOUNTED
FRC
RATIO
FV
STEAM FOR SMOKELESS BURNING
TO OIL RECOVERY FACILITIES OR SLOP
STEAM DRIVEN PUMP & ELECTRICALLY DRIVEN SPARE

NOTE: This represents an operable system arrangement and its components. Arrangement of the system will vary with the performance required. Correspondingly, the selection of types and quantities of components, as well as their applications, must match the needs of the particular plant and its specifications.

Figure 15-1—Typical Elevated Flare Installation with Steam Injection [3]

15.2.1 PRESSURE RELIEF, RECOVERY, AND GATHERING SYSTEMS

The safe operation of the refinery, the protection of the surrounding neighborhood, and compliance with air pollution control regulations depend on the proper design and operation of the refinery flare system.

Vapor recovery systems and pressure relief systems are discussed in Chapter 7. Current American Petroleum Institute publications provide the information required for the design, installation, and inspection of pressure relief and depressuring systems [2, 3, 4]. Additional information on flare gathering systems is contained in the literature [5, 6, 7, 8, 9, 10, 11, 12].

15.2.2 AIR POLLUTION

While designed to reduce air pollution, a flare can be a source of objectionable emissions of smoke, sulfur oxides, nitrogen oxides, noise, heat, and light.

15.2.2.1 Smoke

Carbon dioxide and water vapor are the products obtained from the complete combustion of hydrocarbons. In order to obtain total burning, at least the stoichiometric amount of air must be provided. This required air increases with the molecular weight of the gas burned from 9.6 cubic feet of air per cubic foot of methane to 38.3 cubic feet per cubic foot of pentane. If less than the stoichiometric air is supplied, carbon in the form of smoke appears as one of the products of combustion.

The air is supplied to the flame as primary and secondary air. Primary air is premixed with the gas prior to combustion; the secondary air is inspirated into the flame. According to Vanderlinde [13], for a paraffin, 20 percent of the stoichiometric air should be supplied

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as primary air, and the air should be thoroughly mixed with the hydrocarbon. For an olefin, 30 percent of the air should be primary air. When less than the required amount of primary air is present, the gases entering the base of the flame are preheated by the heat from the combustion zone causing cracking of the larger hydrocarbon molecules to hydrogen, unsaturated hydrocarbons, and carbon. The incandescent carbon particles may escape further combustion and cool down to form soot or smoke. Olefins and other unsaturated molecules may polymerize, forming larger molecules which crack in turn, forming more carbon. When the required amount of primary air is thoroughly premixed with the hydrocarbon gases, the oxidation reaction proceeds by hydroxylation. Hydrocarbons and oxygen react to form aldehydes which in turn oxidize to form carbon dioxide and water without forming carbon.

A number of systems have been developed to provide smokeless combustion with various flare tips. They are discussed in 15.3 and 15.4.

15.2.2.2 Sulfur Oxides

Hydrogen sulfide or other volatile sulfur compounds, such as mercaptans, discharged to the flare system are burned at the flare tip along with the hydrocarbons. The flame temperature for hydrocarbons burning in the open air can reach 3600 degrees Fahrenheit depending on the amount of steam present. At such high temperatures and with sufficient air (smokeless combustion), one would expect the sulfur compounds to be converted completely to sulfur dioxide.

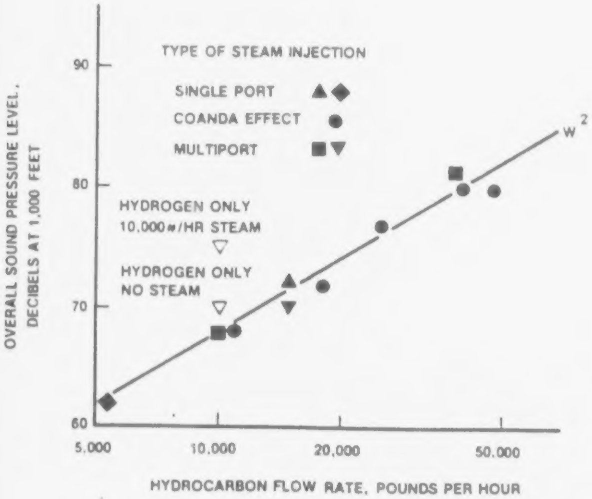

Figure 15-2—Elevated Flare Noise vs. Hydrocarbon Flow Rate [14]

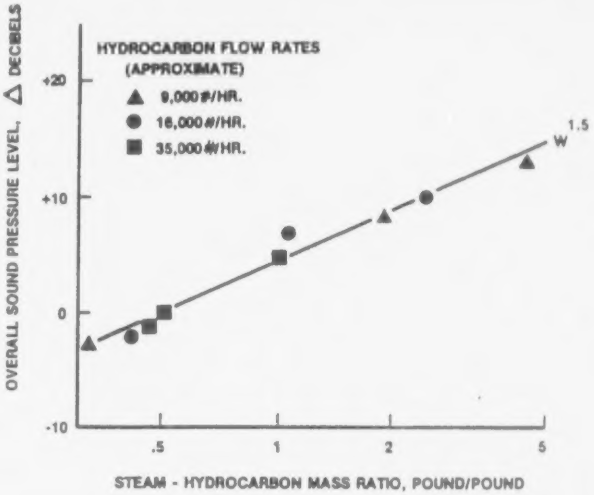

Figure 15-3—Effect of Steam Injection on Combustion Noise [14]

The amount of sulfur dioxide emitted by the flare can vary from a trace, when the refinery is operating normally, to very large amounts during upsets. The flare should be designed to minimize the effects of this emission by diluting and dispersing it.

15.2.2.3 Nitrogen Oxides

The nitrogen oxides found in the combustion gases from a flare are a result of the fixation of atmospheric nitrogen and the combustion of any nitrogen compounds that may be present in the flare gas.

The amount of nitrogen compounds, mainly ammonia, found in a flared gas will vary widely depending on the nitrogen content of the crude oil being processed and the refining processes employed.

The nitrogen oxides in the products of combustion usually can be dispersed satisfactorily.

15.2.2.4 Noise

The major source of noise in a flare is the combustion roar resulting from the burning of a turbulent gas stream. As shown in Figure 15-2 [14], the noise is almost proportional to the second power of the quantity of hydrocarbon burned.

In a smokeless flare, additional noise is generated by the steam. Increased high frequency noise (1000 to 2000 hertz) results from steam at 100 to 150 pounds per square inch gage discharging from nozzles at the base of the flame. Low frequency (250 to 500 hertz) combustion noise is also increased because of the greater turbulence in the combustion zone, see Figure 15-3 [14].

CONCAWE[1] [15] has developed a standard method for measuring the noise from flares. Sound measurements are made at a distance of 100 meters from the flare, and the results are referred to a distance of 200 meters. The use of a standard method makes comparison of results obtained at various installations easier. Noise levels at other locations, such as fence lines, can be calculated by Equation 1.

$$L_P = L_A - 20 \log \frac{R_P}{R_A} \qquad (1)$$

Where:

L_P = sound pressure level at Point P
L_A = sound pressure level at Point A
R_P = distance of Point P from stack, in feet
R_A = distance of Point A from stack, in feet

15.2.2.5 Heat

When a hydrocarbon vapor is burned in air, up to 40 percent of the heat of combustion is emitted by radiation, depending on the emissivity of the flame. The radiant heat intensity at any point, P, at grade is inversely proportional to the square of the distance from the center of the flame.

$$\boxed{q = \frac{eQ}{4\pi R^2}} \qquad (2)$$

Where:

q = heat intensity at Point P, in British thermal units per hour per square foot
Q = heat release, in British thermal units per hour
e = emissivity
R = distance of Point P from center of flame, in feet

Fuel gases completely mixed with sufficient air will burn with a nonluminous flame, and the emissivity will be that of the products of complete combustion—carbon dioxide and water. At an ordinary flare, combustion is incomplete, and the luminosity of the flame is much greater. When the flame is very smoky the amount of heat radiated will be reduced due to shielding by the smoke, and the actual heat release is reduced because of unburned fuel.

Table 15-2—Emissivity Factors for Hydrocarbons [16]

Hydrogen/Carbon Ratio	Emissivity Factor E
0.5	0.075
0.33	0.17
0.25	0.23
0.17[a]	0.12

[a] Effect of smoke formation.

Hajek and Ludwig [12] have suggested emissivity values of 0.40 for heavier hydrocarbons, 0.33 for propane, and 0.20 for methane. The Bureau of Mines [16] released the data in Table 15-2 showing the effects on emissivity of hydrogen/carbon ratios and smoke formation. Somewhat lower valves have been suggested by Reed [10].

The distance, R, to the center of the flame depends on the height and angle of inclination of the flame. In turn these are governed by—

1. The heat release which is related to the length of the flame as shown in Figure 15-4. For stacks sized for an exit velocity of 0.2 Mach number, at full flow, the flame length will be approximately 120 times the stack diameter in feet.
2. Lateral winds cause the flame to tilt thus reducing the effective height as shown in Figure 15-5 [3].

In many cases, the intensity of radiated heat is the controlling factor in locating a flare. API recommendations for maximum heat intensities at various points adjacent to a flare are listed in Table 15-3.

If heat sensitive equipment may be exposed to a flare, the resulting surface temperature should be calculated. A method of doing this is given in Reference 17.

Table 15-3—Maximum Permissible Heat Intensity [3]

Maximum Intensity, K, (Btu per hour per square foot)	Location
750	At property lines.
1500	Areas where emergency actions lasting several minutes may be required by personnel without shielding.
2000	Areas where emergency actions lasting 1 minute may be required by personnel without shielding.
3000	Maximum value of K at design flare release at any location where personnel have access: for example, at grade, below the flare, or on a service platform on a nearby tower. Exposure must be limited to a few seconds, sufficient for escape only. On towers or other elevated structures, ladders must be provided on the side away from the flare so that the tower or structure can provide some degree of shielding.

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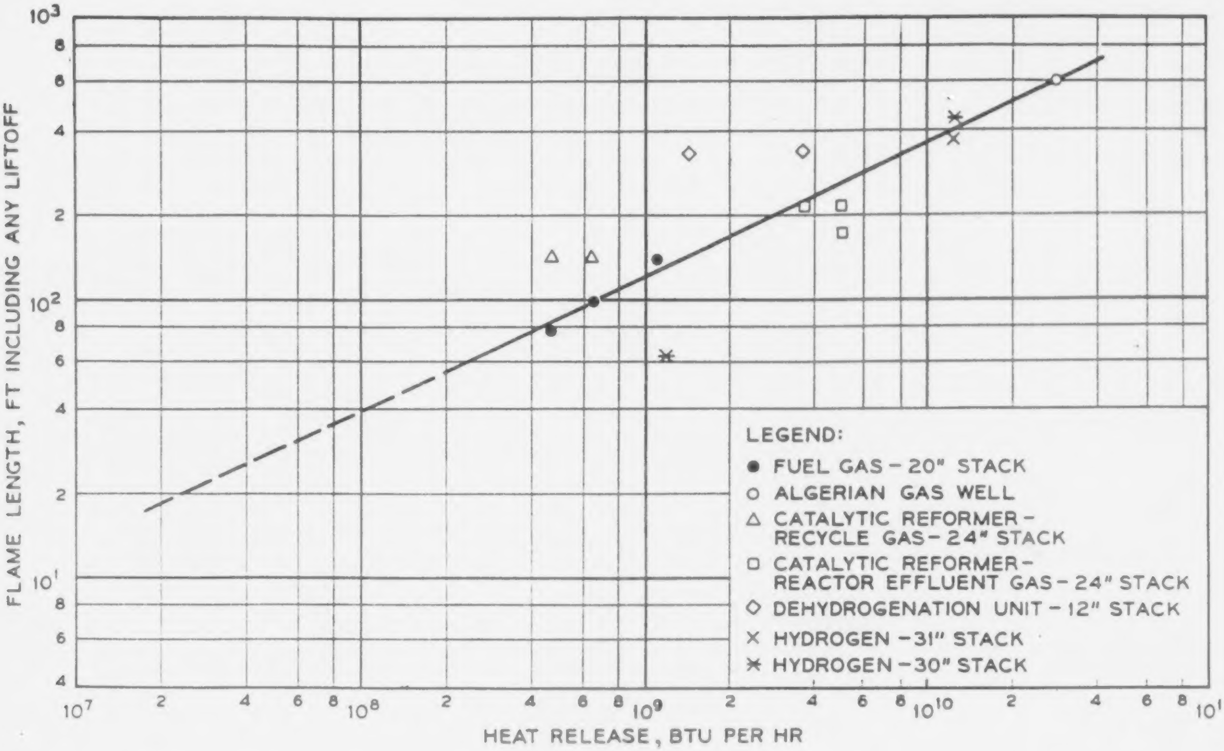
[1] Stichting CONCAWE—The oil companies' international study group for Conservation Of Clean Air and Water (Western Europe).



NOTE: Multiple points signify separate observations or different assumptions of heat content.

Figure 15-4—Flame Length vs. Heat Release (Industrial Sizes and Releases) [3]

15.2.2.6 Light

Fuel gases which are thoroughly mixed with sufficient air burn with a blue, nonluminous flame. Where the air is insufficient, the flame becomes luminous. If the secondary air is insufficient, the glowing carbon particles cool to form soot, and smoke is emitted.

When steam is added to a flare, the supply of secondary air is increased until the emission of smoke ceases and the flame becomes an orange ball. Further increases in steam cause the color of the flame to change from orange through yellow to almost white, becoming blue at night. The total amount of steam required is about three times that required to eliminate trailing smoke.

At some locations a refinery flare attracts the attention of people residing near the refinery, and the emissions of light and noise may be sufficient to disturb their rest, with complaints possibly resulting. Specially designed ground flares may have to be installed.

15.2.3 DISPERSION OF FLARE COMBUSTION PRODUCTS

The effects of the gaseous pollutants in the products of combustion can be minimized by effective dispersion which dilutes pollutants to innocuous concentrations. The factors which govern dispersion and equations for calculating the results are given in Chapter 6.

Bouthillier [18] provides a method of estimating the plume rise of a flare based on the gross heat content of the gases flared.

15.2.4 REMOVAL OF ENTRAINED LIQUID

When complex mixtures of hydrocarbon vapors at high temperatures are released into a flare system, cooling occurs and liquids condense out as the dew point is reached. Even a small amount of entrained liquid will cause a smoky flare and greater emissions of light. Heavy carryover of large drops can produce a rain of burning liquid, thus it is necessary to prevent entrainment by providing a knockout drum as shown in Figure 15-1.

Reed [10] estimates that the loss of heat in a flare system is 5 to 10 British thermal units per square foot of surface per degree Fahrenheit temperature difference between the steel and the atmosphere. The range is due partly to the effect of wind, while the rate of cooling would be greater in a rain storm. The vapor space in

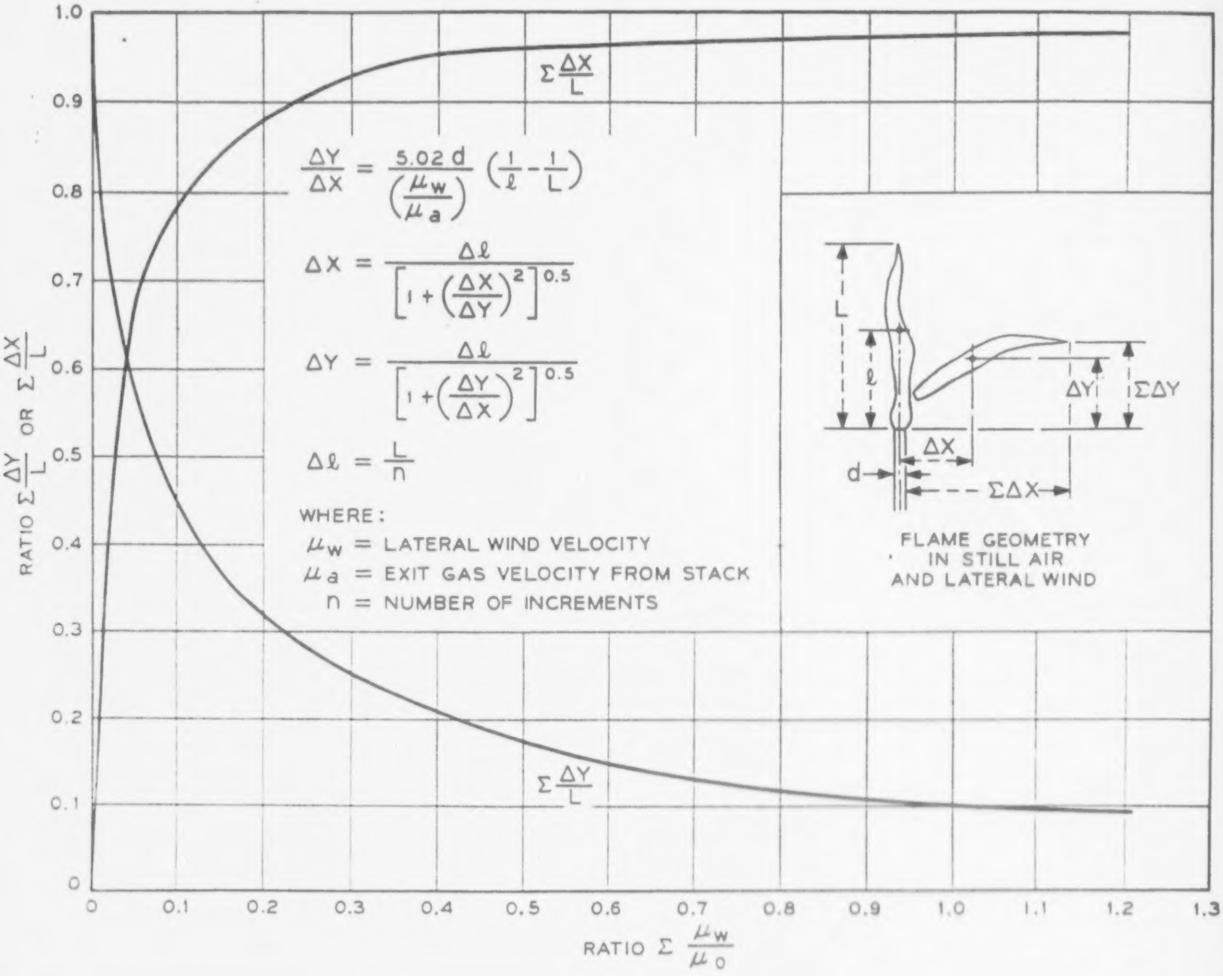


Figure 15-5—Approximate Flame Distortion Due to Lateral Wind on Jet Velocity from Flare Stack [3]

the knockout drum must be sufficiently large to reduce the vapor velocity below the drop-out velocity of the fine entrained droplets. API RP 521 [3] presents a method for sizing knockout drums to remove droplets of 150 microns and larger. Tan [8] has a method based on removing droplets over 400 microns. The choice of a horizontal or vertical drum is usually based on economics. Drums equipped with pumps on automatic control should have sufficient capacity for the maximum liquid accumulation expected in 15 minutes. The pumps must be capable of handling the lowest molecular weight liquids that are likely to accumulate.

If a very heavy flow of vapor should occur suddenly, previously condensed liquids may be entrained and carried out the stack. Reed [10] recommends that a well-designed mist eliminator be installed at the base of the flare and that the flare stack be designed to trap out liquids and return them to grade. Kent [19] carried out an experimental program in which the relative effectiveness of cyclones, mist eliminators, water seals, and knockout drums were compared by observing the luminosity of a flame. He decided that the mist eliminator was the most effective. Some persons object to mist eliminators because they may become plugged and increase the pressure drop of the system. Cyclones are effective at high velocities but poor at less than design flows.

15.2.5 PREVENTION OF FLASHBACK

When the flow of waste gas through the system is low, air can diffuse back from the tip to form explosive mixtures in the lines. These mixtures could be ignited from the pilots or by the flame front of gases which

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Tank Volumes, Fill Rates & Potential Overflow

Submitted By: Cara Carbone (teacher partner) **School:** Sehome High School
Karen Evans (business partner) **Business:** VECO Engineering

Career Pathway Focus: Technology & Industry
Subject Area: Mathematics **Category:** Geometry
Suggested Grade Level: 10th-12th

Skills Being Applied (***the workplace application***)**:**
- Problem solving
- Acquiring and evaluating information (applying knowledge of volumes of containers to prevent tank overflow)

WA State Student Learning Goal: #3
Essential Student Learning Element(s):
- Math #2 (Solve Problems)
- Math #3 (Uses Mathematical Reasoning)

Amount of Time Needed to Complete Lesson: 1-2 class periods

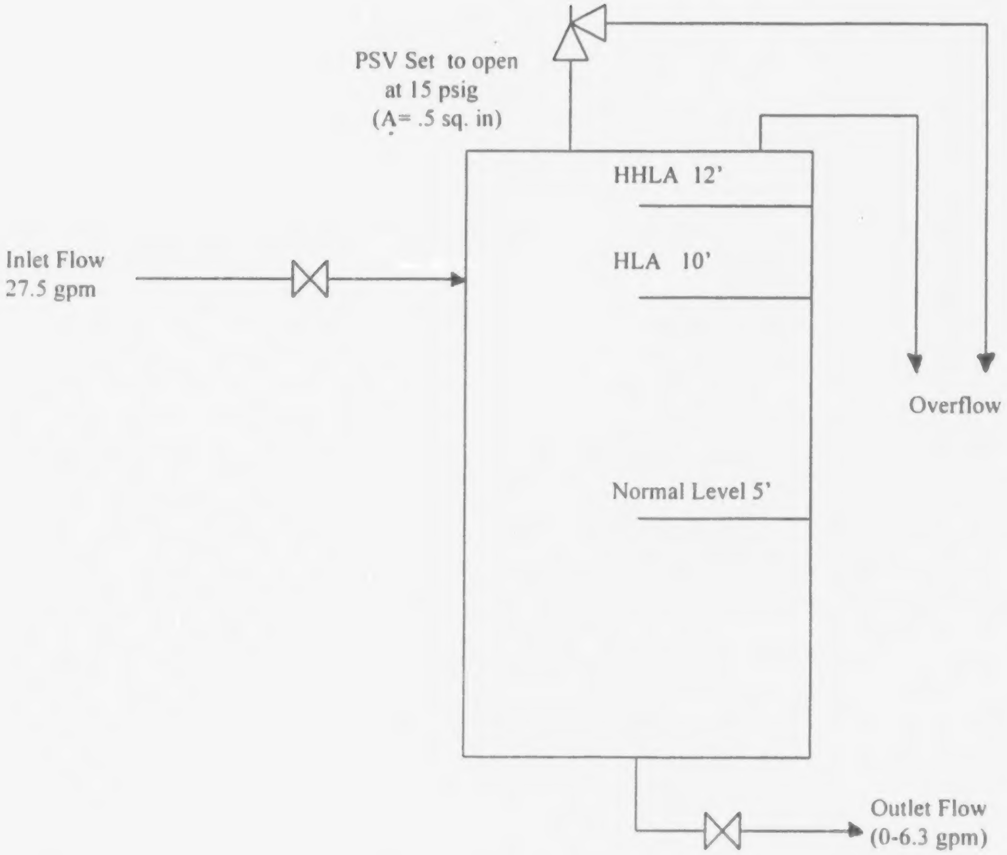
Materials Needed:
- ☐ Handout of tank flow diagram
- ☐ Transparencies of conversion charts
- ☐ Overhead projector

Lesson Overview: Introduction to the job responsibilities of a process engineer who specializes in safety. A process engineer at VECO must apply knowledge about volumes of various types of containers to prevent tank overflow of hazardous materials.

Directions for Lesson/Activity/Project:
Students will examine several job scenarios that involve safety issues. Tanks of varying sizes and shapes are being filled at different flow rates. Students are to determine, absent a safety valve, if or when the tanks will overflow.

Teacher provides handout of tank flow diagram. Students derive, or teacher provides formulas for partial volumes of a regular cylinder and a cylinder with elliptical ends (formulas for both upright and resting horizontally). Class discusses:
- volume as a function of flow rate
- volume as a function of time
- unit conversions

Suggested Assessment: Working individually or in pairs, students are to complete the five problems provided on the handout.


PSV Set to open
at 15 psig
(A= .5 sq. in)
HHLA 12'
HLA 10'
Inlet Flow
27.5 gpm
Overflow
Normal Level 5'
Outlet Flow
(0-6.3 gpm)

Tank Description: Cylindrical tank with flat ends. Dimensions: ID = 9 ft, Height = 13 ft.

Fluid Description: The fluid is oil which has a density of 48.3 lb/cubic ft.

Problem 1: Tank is being filled at a rate of 27.5 gpm. The discharge valve is closed but the operator does not notice. The tank is filling above the normal liquid level and will eventually fill to the top and over flow onto the tundra.

Question: If the level starts at normal liquid level, how long will it take for the high level alarm (HLA) to sound? How long for the high high level alarm (HHLA) to sound? If the operator has headphones on and does not hear the alarm, how long will it take for the vessel to fill and begin to overflow?

Problem 2: As given above, the tank is being filled at a rate of 27.5 gpm. The discharge valve is open and discharging at a rate of 6.3 gpm. Answer the questions based on this

information.

Problem 3: **Suppose the tank was on it's side (horizontal). The filling rate is 27.6 gpm. The discharge rate is 6.3 gpm. Answer the questions based on this information.**

Problem 4: Suppose the tank is overflowing and the overflow rate is 24.5 gpm. Will the pressure build up in the tank? What if the overflow line can only pass 10.5 gpm, will the pressure build up in the tank?

Problem 5: If the pressure builds up in the tank, the pressure safety valve (PSV) located at the top of the tank is designed to relieve the pressure before it gets high enough to damage the tank. Is the PSV area large enough to pass the extra flow? The sizing for this PSV is based on the following equation:

$$A = \frac{(R)(D/62.4)^{5}}{(32)(P1 - P2)^{5}}$$

where:
A = cross sectional area available for liquid to pass through the PSV (square in.)
R = rate of flow passing through the PSV (gpm)
D = density of the liquid (lb/cubic ft)
P1 = pressure in tank (psig)
P2 = pressure at discharge from PSV (Note: atmospheric pressure is 0 psig)

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: The Pressures of Piping Propane

Submitted By: Brad Dallas (teacher partner)
Chuck Griffin (business partner)
School: Nooksack Valley High School
Business: VECO Engineering

Career Pathway Focus: Technology & Industry (Industrial Technology/Engineering)
Subject Area: Math/Science
Category: Calculus/Physics
Suggested Grade Level: 10-12

Skills Being Applied ***(the workplace application)*****:**
- Arithmetic/Mathematics
- Communication (listening, speaking)
- Reasoning
- Knowing how to learn
- Responsibility

WA State Student Learning Goal: #1, 2, 3, and 4
Essential Student Learning Element(s):
- Math #1 (understand and apply concepts and procedures of mathematics - number sense, measurement, spatial sense, functions & relationships)
- Math #2 (solve problems - investigate situations, formulate questions, construct solutions)
- Math #3 (use mathematical reasoning - analyzes situations, predicts results)
- Math #4 (communicates knowledge & understanding in mathematical & everyday language - interprets and shares information)
- Math #5 (makes mathematical connections - relates in real-life situations)

Amount of Time Needed to Complete Lesson: 90 minutes

Materials Needed:
- ☐ White board
- ☐ *Storage and Loading Facility* handout
- ☐ Optional, computer with automated displays (see notation below)

Note: in the computer demonstration, values associated with the instruments are linked to a spreadsheet and update automatically when values are changed based on the spreadsheet formulas. Hand calculations are quickly verified, and the relationships between fluid density, tank level, pressure, temperature, and fluid flow are easy to investigate.

Lesson Overview:
Senior automation designers at VECO design the electronic displays and controls required to automate physical processes such as the storage and loading of propane. Automation requires the replacement of valves and gauges once turned and read by workers with digital

counterparts which are controlled by computer. Computer programs are written to control the processes, displays are designed to provide information about the system to the new computer/system operators, and the instruments and computers must be tested, calibrated, and installed.

In this lesson, students will be presented with a rudimentary process schematic. They will learn to read and understand the lines and symbols on the schematic. They will become familiar with the instrumentation, being able to distinguish between various instruments and describe their functions. Students will also investigate the relationship between tank level and pressure. When asked how the instruments change with tank level and fill fluid type, they will provide both oral and written answers.

Advanced science and calculus students will have the option of a more in-depth study. The relationship between temperature, pressure and fluid flow will be investigated. Torricelli's Law describing the velocity of a stream of fluid due to gravity will be considered. The calculus students will be able to write and solve differential equations relating the change in volume to the changing tank level. They will be able to calculate the theoretical amount of time required to drain different shaped tanks given the size of the drain hole. They will be able to provide both an oral and written explanation of the difference between theory and physical reality, and the resulting need and function of the flow controller.

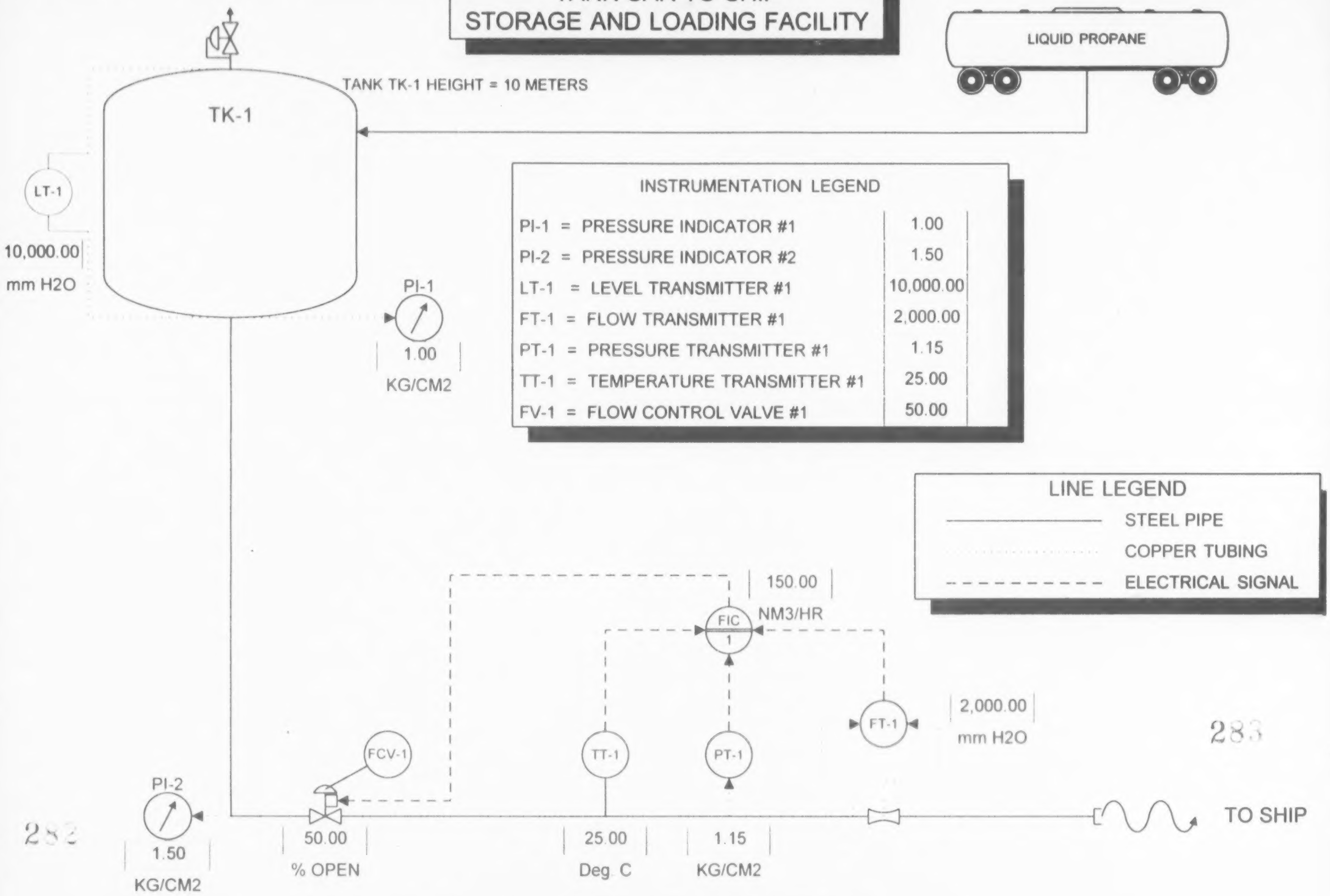
Directions for Lesson/Activity:

This lesson is designed to be presented in a lecture/discussion format. The instructor may present information and utilize a white board or overhead to illustrate the content. The *Storage and Loading Facility* handout will be presented and discussed. If the computer model is available, it too will be presented and demonstrated.

Students will be expected to have some background and understanding of the pressure in a liquid, density, the states of matter, and basic arithmetic. These topics are covered in any basic physical science text. Students will be actively involved in listening, speaking, and taking notes during the presentation. Throughout the lesson, students will be asked to use paper, pencil and possibly a neighbor to solve problems. Sample questions follow.

1. How do LT-1, PI-1 and PI-2 change with tank level?
2. How do LT-1, PI-1 and PI-2 change with type of fill fluid?
3. Given the relationship formula, how does the FC-1 indication change as the TT-1, PT-1 and FT-1 variables change?
4. Which way (increase/decrease) should the controller output go to correct for a variable increase or decrease?
5. Given results, calculate formulas.
6. Given formulas, calculate results.

TANK CAR TO SHIP STORAGE AND LOADING FACILITY


LIQUID PROPANE
TANK TK-1 HEIGHT = 10 METERS
TK-1
LT-1
10,000.00
mm H2O
PI-1
1.00
KG/CM2
150.00
NM3/HR
FIC
1
FT-1
2,000.00
mm H2O
FCV-1
TT-1
PT-1
PI-2
1.50
KG/CM2
50.00
% OPEN
25.00
Deg. C
1.15
KG/CM2
TO SHIP

INSTRUMENTATION LEGEND

PI-1 = PRESSURE INDICATOR #1	1.00
PI-2 = PRESSURE INDICATOR #2	1.50
LT-1 = LEVEL TRANSMITTER #1	10,000.00
FT-1 = FLOW TRANSMITTER #1	2,000.00
PT-1 = PRESSURE TRANSMITTER #1	1.15
TT-1 = TEMPERATURE TRANSMITTER #1	25.00
FV-1 = FLOW CONTROL VALVE #1	50.00

LINE LEGEND

―――――――	STEEL PIPE
···············	COPPER TUBING
- - - - - - - -	ELECTRICAL SIGNAL

CLASSROOM / LAB EXAMPLE FOR NOOKSACK VALLEY HIGH SCHOOL

Heath Tecna Aerospace Company

Business Profile:

Established in 1950, Heath Tecna has become a leading supplier of high-strength, lightweight composite structures and aircraft interiors for the aerospace and defense industries. With our professional engineering and production staff, we can carry complete projects from initial concept and design to final assembly and installation.

Heath Tecna is a business unit of Ciba Composites Division. Ciba Corporation, with annual sales of more than 12 billion dollars, is one of the world's foremost chemical manufacturers. With the substantial resources and stability of Ciba Corporation behind us, Heath Tecna delivers unmatched aircraft interiors, composite structures and new process technologies.

Heath Tecna is a leader in material properties knowledge and is constantly exploring the latest in composite materials. Because we've worked extensively with every major aerospace manufacturer, we are currently qualified on most major process and quality specifications in use today for graphite, aramid, fiberglass, and metal bonding.

Finally, Heath Tecna's Total Quality System (TQS) is founded on a single, powerful premise - that quality cannot be inspected in, it must be built in. This system provides a comprehensive quality program that permeates the entire organization.

Workplace Applications Informational Interview

Business: Heath Tecna Aerospace
Address: 3225 Woburn
Bellingham, WA 98226

Contact: Roy Redmond
Phone: (360) 738-2005
Date of Visit: Oct., 1995

* * *

Management/Human Resources Questions

Primary products/services: supplier of high-strength, lightweight composite structures and aircraft interiors for the aerospace and defense industries.

What kind of person are you looking for? (personal attributes - employability)
- Strong communication skills -- both verbal and written.
- Ability to function as a team member.
- Strong technical skills are important, but secondary to the above.

How do you announce employment opening/recruitment notices? Job Service Center

What kind of pre-screening do you do? (education/experience/other) An application process and a math test for basic math skills. Work history and skills are also important.

What type of interviewing do you do? We use a team interview approach.

What are your most common reasons for terminating an employee? Not able to function as a productive member of their assigned team.

What are the occupation titles within your workforce? Composite Associate is the universal entry level title (no matter what the actual task), progressing to Senior Builder, and then to Master Builder. These job titles represent the production flow employees.

What are the skills needed in five years? (workforce of the future) The #1 priority is communication skills (including a second language). This skill will determine whether or not you advance up the company "job ladder."

What type of retraining do you do? Work teams are largely responsible for retraining their group members on task specific skills.

What percentage of your workforce has a four year degree? 40%; two year degree? 10-15%; High school diploma only? 45-50%; Not high school graduates? 0%

What kind of accommodations do you make for people with disabilities? The building is accessible; people with sight impairments have had their work environment adjusted to accommodate.

What is the role of employee organizations/unions in your company? It is a non-union shop but Heath Tecna has an employee committee responsible for representing fellow employee views and issues.

First Line Supervisor Questions

Primary products/services: *same as above* (aerospace parts and interiors)

What kind of person are you looking for? Ability to function as team member!

What type of retraining do you do? Retrain for necessary technical skills.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Blueprint reading, precision measurement, use of pnuematic and electrical hand tools.

How would you recommend we teach the work ethic to students? Expose students to the real work world; internships and apprenticeships.

What is the one thing you wish we would teach our students? More APPLIED knowledge -- technical skills, communication skills.

What is the most valuable skill an employee can bring to your department? Ability to communicate effectively.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? Not necessarily obsolete, but many manual skills are now done with equipment or machines. We need to reprioritize what we teach. More applied skills needed instead of theoretical.

What do you foresee to be the "future trends" in your business area?

Employee Questions (Team Leader - Lay Up; 6 years on the job)

What do you like most about your job? The cooperative environment; the responsibility.

What do you like least about your job? The noise and dust.

How did you choose this particular line of work? I was a housewife who needed a job that paid a living wage.

What classes did you take in school that were most helpful? Math and art.

What classes have been the least helpful? (No response)

What would be a problem situation that you might face in your daily work? How would you handle it? (No response)

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Math, physics, team work skills.

Could you describe 3-5 specific skills that you use regularly on your job?
- Technical skills
- Communication skills
- Organizational skills
- Time management skills
- Team work skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: The Factory Game

Submitted By: Holly Koon (teacher partner)
Roy Redmond (business partner)

School: Mt. Baker High School
Business: Heath Tecna Aerospace Co.

Career Pathway Focus: Technology & Industry
Subject Area: Science
Suggested Grade Level: 9-12 and beyond

Category:

Skills Being Applied ***(the workplace application)*****:**
- Communication
- Group participation skills
- Team Development

WA State Student Learning Goal: #1
Essential Student Learning Element:
Communication #3 (applies interpersonal communication strategies and skills)

Amount of Time Needed to Complete Lesson: approximately 2 hours

Materials Needed:
- ☐ 2 pegboards plus 60 pegs
- ☐ 2 stopwatches
- ☐ Instruction handouts
- ☐ 2 tables of equal height and size

Lesson Overview:
Employees of manufacturing, industrial and technical centered businesses must be able to analyze and solve problems, communicate with fellow employees and work in teams. Through a factory simulation exercise, students will work in teams to accomplish tasks, respond to change, and deal with issues routinely found in most business environments.

Students will experience first hand how teams develop, the role communication plays in the success of the team, and how a team reacts under different circumstances.

Directions for Activity:

Round One: The class is divided into two equal groups. One observer and one timer is chosen from each group. Each group is allowed five minutes to decide the quickest way to put 30 pegs into a pegboard. During this planning time students are being observed for team development and communication skills. After five minutes the groups are told to start, and the times are recorded. A leader led discussion follows highlighting the observations of the instructor, observers, and the participants.

Round Two: With this first experience behind them, the students are ready for round two. Same observers, timers, and five minute planning time applies. However, in round two the newly formed team will be asked to place the pegs in a specific pattern. Roughly three minutes into the planning time, this pattern will change. The teams must adapt to the change with two minutes planning time left. Again the students activities are observed for later discussion. The "start" signal will be given, and times will be recorded. A discussion on "change" will follow this round.

Round Three of this exercise will run as the first two, with one exception. Three minutes into the planning time, several key persons from each team will swap sides. Again the teams must adapt to this change. A discussion on the effect a new member has on the team and what the team can do to minimize it, will follow this round.

Suggested Assessment:

Throughout this exercise student and instructor observations are recorded and discussed. A teams performance can best be evaluated by the synergy between its members, not necessarily by who has the fastest times. However, it's the competition that makes this exercise fun.

IBEW - Local 191

International Brotherhood of Electrical Workers

Business Profile:

The International Brotherhood of Electrical Workers is the largest electrical union in the world. The organization seeks to provide quality workers for employment in the electrical trades. The IBEW represents workers rights in all areas of the electrical industry.

The National Electrical Contractors Association (NECA) is the management association for electrical contractors. To provide a highly skilled workforce to meet customer needs and insure job satisfaction for electrical workers, the IBEW and NECA sponsor apprenticeship training programs -- the National Joint Apprenticeship and Training Committee (NJATC) for the electrical construction industry. Apprenticeship requires a signed agreement between a student/worker and the IBEW-NECA sponsor which insures quality training on-the-job and in the classroom. In an apprenticeship program you literally *earn while you learn*. In signing an apprenticeship agreement, a student/worker commits to participate in classroom related training as well as on-the-job training.

Basic requirements for apprenticeship programs may vary slightly depending on the local area but generally, apprenticeship program sponsors are selective. They evaluate a candidates educational background, looking for course selection and accomplishments. Areas evaluated include math skills (one or more years of algebra); physical science courses taken (strong science background); mental and physical ability required for the work of the trade; any previous work experience and type of work record established (work ethic, reliability, work standards, etc.); and ability to work with others (a team player, positive attitude).

IBEW, Local 191, currently serves many local companies that represent a variety of phases of the electrical industry. IBEW serves companies engaged in residential, commercial, and industrial electrical maintenance and construction, as well as television broadcasting, electrical power generation, and motor repair shops.

Workplace Applications Informational Interview

Business: NW WA Electrical Industry (JATC)
Address: 1710 Anderson Rd
Mt. Vernon, WA 98273

Contact: Karen Carter
Phone: (360) 428-5080
Date of Visit: November 1, 1995

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Management/Human Resources Questions

Primary products/services: Training electrical workers.

What kind of person are you looking for? (personal attributes - employability)

- People that want to learn
- People who are dependable
- People who enjoy math

How do you announce employment opening/recruitment notices?
We announce positions through the IBEW office, TV ads, newspaper, Dept. of Labor and Industry.

What kind of pre-screening do you do? (Education/experience/other) Review of application.

What type of interviewing do you do?
Primarily through a four person interview committee: 2 labor, 2 management.

What are your most common reasons for terminating an employee?
Absentees, tardiness, drugs

What are the occupation titles within your workforce?

Apprentice
Journeyman
Foreman

What are the skills needed in five years? (workforce of the future)
75% on training tests, pass state test

What type of retraining do you do? (employee basic skills; technical skills)
24 hours of retraining/upgrade are required every 3 years.

What percentage of your workforce has a four year degree? 15-25%; 2 year degree? 80%; High school diploma *only*? 10%; Not high school graduates? 10%

What kind of accommodations do you make for people with disabilities?
Being a physically demanding skill-oriented job, it is hard work. There have been workers with one hand. Also, some workers with ADD.

What is the role of employee organizations/unions in your company?
This company is a service to the unions.

First Line Supervisor Questions

Primary products/services: Training for electricians.

What kind of person are you looking for? (personal attributes - employability)
People who are self motivated, with good people skills. Group skills are also important. Employees who are career-minded.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Basic electrician tools.

How would you recommend we teach the work ethic to students?
Stress the importance of listening and communication skills; attendance/tardiness; importance of grades.

What is the one thing you wish we would teach our students?
The reasons for learning and applications of math.

What is the most valuable skill an employee can bring to your department?
The importance of being on time.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? We need to stop teaching that the technical fields are only for those who aren't smart enough for college. The brain is becoming much more important than the brawn in the technical fields.

What do you foresee to be the "future trends" in your business area?
There will be more computers on the job site and workers will be installing more computer equipment.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Electricians, Technical Labor, and Math

Submitted By: Scott Smartt (teacher partner)
Karen Carter (business partner)

School: Mt. Baker High School
Business: NW WA Electrical Industry JATC

Career Pathway Focus: Technology and Industry
Subject Area: Mathematics
Suggested Grade Level: 9-10

Category: Basic Skills

Skills Being Applied ***(the workplace application)*****:**
- Basic math skills (percents, adding, cross-checking totals for mistakes)
- Following instructions
- Interpersonal skills
- Budget building
- Communication

WA State Student Learning Goal: #2 and 4
Essential Student Learning Element(s):
- Math #2 (solves problems using mathematics)
- Math #3 (uses mathematical reasoning)
- Math #4 (communicates knowledge and understanding in mathematical and everyday language)
- Math #5 (makes mathematical connections)

Amount of Time Needed to Complete Lesson: 1 class period with a budget sheet follow-up

Materials Needed:
- ☐ VCR and 10 minute Technical Union tape
- ☐ Budget worksheet
- ☐ Math skills worksheet

Lesson Overview:
Mrs. Carter (Training Director for the Electrician's Apprenticeship Program) will discuss the electrician's union and the apprenticeship program. She will discuss the route through the program, starting in 9th grade and finishing as a job foreman. We will provide the students with an idea about the math skills and background required for employment in this field. Students will be given information about opportunities available in this career pathway. A budgeting assignment will help students develop a "financial picture" about career pathway opportunities that are related to achievement of various levels of education (skill and ability).

Directions for Lesson/Activity/Project:

- Introduce speaker.
- Speaker gives overview of apprenticeship program and entry skills needed. During this time, students will also ask questions. Specific salary levels of electricians will be addressed.
- Students attempt math problems on worksheet.
- Discuss levels of the various problems on worksheet and when they will be learned and for what jobs they need to be learned.
- Concluding video and wrap up.

Follow-up activity #1:
Students compare hourly, monthly and yearly salaries of three different occupations (mall job, teacher, and electrician) at 3 different stages of career (beginning, 5 years, 10 years).

Follow-up activity #2:
Students prepare sample budgets using one of the occupations from earlier activity. The categories are labeled and the students must figure out how much money they can put in each category.

Suggested Assessment:
Grade and discuss follow-up activities.

		Follow-up activity #1			
Pay scale worksheet					
Job	**Experience**	**Hour Wage**	**Month Wage**	**Year Wage**	**Net pay**
Teacher	Beginning			$20,000.00	
Teacher	5 years			$30,000.00	
Teacher	10 years			$40,000.00	
Electrician	Apprentice	from notes			
Electrician	Journeyman	from notes			
Electrician	Foreman	from notes			
Mall Job	Entry	$6.00			
Mall Job	Ass't Manag	$9.00			
Mall Job	Manager	$12.00			
Net pay = Gross pay - 24% taxes					
	Follow-up activity #2				
Spending worksheet 1					
Type	**Percentage**	**Dollars**			
Housing	28%				
Entertainm	10%				
Food	15%				
Utilities	12%				
Clothes	6%				
Car	20%				
Personal	5%				
Savings	4%				
Total					
Spending worksheet 2					
Type	**Dollars**	**Percentage**			
Housing					
Entertainment					
Food					
Utilities					
Clothes					
Car					
Personal					
Savings					
Total	2000	100%			

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: Electrical Power Generation in Whatcom County

Submitted By: Kevin Criez (teacher partner)
Brad Owens (business partner)

School: Sehome High School
Business: IBEW (International Brotherhood of Electrical Workers)

Career Pathway Focus: Technology and Industry
Subject Area: Technology
Suggested Grade Level: 9-12

Category: Principles of Technology

Skills Being Applied ***(the workplace application):***
- Critical thinking
- Problem solving

WA State Student Learning Goal: #2 and 3
Essential Student Learning Element:
- Science #4 (understand the interdependence among science, technology, and mathematics)
- Science #5 (design ways of meeting science and technology challenges)

Amount of Time Needed to Complete Lesson: Three class periods

Materials Needed:
- ☐ Representative from Encogen Northwest Power Plant (your local power generation plant)
- ☐ Visual aids supplied from Encogen relating to turbines and electrical power generation

Lesson Overview:
This lesson provides an opportunity for students to begin making connections between science, technology and mathematics. In the Pacific Northwest production of energy is a critical concern...issues related to cost, cleanliness, environmental impact, availability, are often debated. But how electricity is produced requires an integration of math, science and technical skills. It is an ideal learning experience for students enrolled in a Principles of Technology class.

Note: *During my job site tour with my business host, we visited Encogen Northwest, a Cogeneration Plant operated through the Lone Star Energy Company. A Cogeneration plant produces electricity for the community and steam for an industrial user with the maximum utilization of energy and resources. Natural gas fuels the cogeneration plant which then supplies enough electrical power to Puget Power to produce electricity for all the homes in Whatcom County, plus steam power and warm water to Georgia Pacific. As a result of this tour, I was able to partner with Rob Hoyt for the following lesson.*

Directions for Lesson/Activity/Project:
The company representative from *Encogen Northwest/Lone Star Energy* provided the electricity and cogeneration expertise behind this lesson and helped team teach with the classroom instructor.

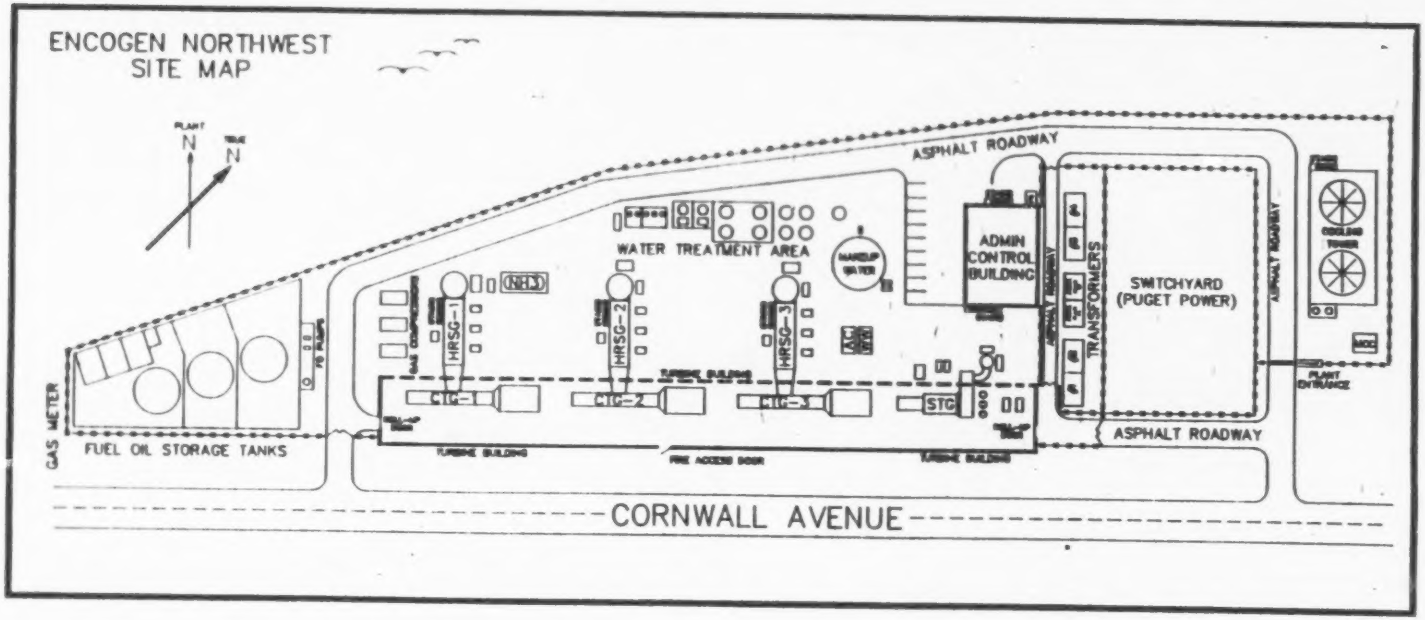
Day One:
The first session will require the company representative to come to the high school classroom. A general overview about *Encogen Northwest* and how it operates is done by the company representative. A discussion is begun on the differences between how *Encogen* produces electricity and how other companies produce electricity. Visual aides help students better understand how a turbine produces electricity (the guest speaker explains how electricity is produced from natural gas and turbines). A discussion is initiated that helps students explore what they "know" about how electricity is produced in Whatcom County. Positives and negatives are listed and discussed about all of the processes used to produce electricity in the Pacific Northwest. Environmental and economic impacts are stressed. The *Encogen* representative is a source of information on these subjects.

After the initial discussion students break into groups. After listening to the issues raised with the guest speaker, try to mix students with environmental concerns with those who expressed industrial concerns...creative discussion will result. During discussion students are to decide which form of power generation is the best for Northwest Washington and why (allow 10-15 minutes for discussion). Students briefly report their ideas to the larger group (presentations are brief).

Day Two:
The second session involves a class field trip to the *Encogen* power plant. A complete tour of the facility is conducted. The students are shown how Encogen Northwest has developed one of the most environmentally safe and economically sound power plants in the United States. Efficiency is stressed as well as how what the students discussed the day before is being used every day by technicians at the plant. The field trip helps tie the whole discussion on power generation together, and provides the students with a "real-world" experience in integrating technical skills with science skills.

Day Three:
See suggested assessment below.

Suggested Assessment: The day after returning from the field trip students break into groups of two to design and build a turbine out of construction paper. The turbines can rotate on lead pencil shafts and be powered by air. Every group powers their turbines with the same amount of air. Groups are evaluated on how well they incorporated what they have learned about turbines into their paper design. The RPMs of the shafts can be measured with a strobe light to determine which groups have developed efficient turbines.


ENCOGEN NORTHWEST
SITE MAP
PLANT N
TRUE N
ASPHALT ROADWAY
WATER TREATMENT AREA
MAKEUP WATER
ADMIN CONTROL BUILDING
TRANSFORMERS
SWITCHYARD (PUGET POWER)
ASPHALT ROADWAY
COOLING TOWER
PLANT ENTRANCE
GAS COMPRESSORS
FO PUMPS
HRSG-1
HRSG-2
HRSG-3
TURBINE BUILDING
CTG-1
CTG-2
CTG-3
STG
GAS METER
FUEL OIL STORAGE TANKS
TURBINE BUILDING
FIRE ACCESS DOOR
TURBINE BUILDING
ASPHALT ROADWAY
CORNWALL AVENUE

TCI Cablevision of Washington, Inc.

Business Profile:

Tele-Communication, Inc. provides television cable service to several million households in the U.S., Europe, and Puerto Rico. TCI has evolved from the early vision of its founder, Bob Magness (in 1956) to provide good television reception to the small community of Memphis, Texas, into the largest multiple cable system operator in the world. TCI continues to provide leadership in the cable industry through its attention to the quality and selection of programming offered its viewers.

Approximately 80 people are employed by TCI in Whatcom County. Career opportunities include management positions, customer service, clerical assistants, production staff, and technical positions.

TCI is looking for people with integrity and a willingness to work in a team environment. A future employee would need to possess strong communication skills, along with basic math, English and computer skills.

Workplace Applications Informational Interview

Business: TCI Cablevision
Address: 777 W. Horton Road
Bellingham, WA 98226

Contact: Carolyn Duim
Phone: (360) 734-5522
Date of Visit: Nov. 16, 1995

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Management/Human Resources Questions

Primary products/services: Cable service, Primestar, Digital Music Express

What kind of person are you looking for? (personal attributes - employability)
- Strong communication skills -- both verbal and written.
- Friendly
- Creative
- Assertive

How do you announce employment opening/recruitment notices? Employment Security, through the University (WWU), minority newspapers.

What kind of pre-screening do you do? (Education/experience/other) Presentation skills, high school degree, experience preferred -- volunteer experience would be good.

What type of interviewing do you do? One on one, followed by a team interview.

What are your most common reasons for terminating an employee? Theft, lateness, safety violations, drug abuse, poor job performance -- all after remediation has taken place.

What are the occupation titles within your workforce? Customer service, installer, service technicians, production technicians, marketing, department managers.

What are the skills needed in five years? (workforce of the future) Basic skills, strong communication skills, and computer literate.

What type of retraining do you do? Customer service, cable and production technology.

What percentage of your workforce has a four year degree? 5%; two year degree? 20%; High school diploma only? 70%; Not high school graduates? 5%

What kind of accommodations do you make for people with disabilities? Physical accommodation and reassignment if needed.

What is the role of employee organizations/unions in your company? None

First Line Supervisor Questions

Primary products/services: Public access TV; video production; community service.

What kind of person are you looking for? See above.

What type of retraining do you do? See above.

What type of specialty equipment is used here that you expect all (or most) employees to be proficient at using? Wide range of computer use; TV production equipment.

How would you recommend we teach the work ethic to students? Teamwork skills; accountability; consequences of non-performance.

What is the one thing you wish we would teach our students? Job application skills; presentation skills, interaction skills, performance skills.

What is the most valuable skill an employee can bring to your department? Integrity and teamwork.

What processes have become obsolete in the last couple of years? What do we no longer need to teach? All skills remain valuable but must be integrated into meaningful contexts.

What do you foresee to be the "future trends" in your business area? Work at home via computers; interactive services; service by "real" people.

Employee Questions (Production Coordinator - 7 years on the job)

What do you like most about your job? Freedom to create, make decisions, set own schedule.

What do you like least about your job? Tyranny of public access and its demands on schedule.

How did you choose this particular line of work? By accident (fate?).

What classes did you take in school that were most helpful? Speech.

What classes have been the least helpful? Higher level math classes.

What would be a problem situation that you might face in your daily work? How would you handle it? Technical glitches -- systematic diagnosis and trouble shooting.

Knowing what you know now, what do you wish you would have paid attention to while you were still in school? Current events and analysis of the news.

Could you describe 3-5 specific skills that you use regularly on your job?

- Technical skills - both computer and video
- Communication skills - both verbal and written
- Math - especially accounting
- Construction skills

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: The Production Team

Submitted By: Jim Nelson (teacher partner)
Carolyn Duim (business partner)

School: Blaine High School
Business: TCI Cablevision

Career Pathway Focus: Technology and Industry
Subject Area: Technology Education
Suggested Grade Level: Grades 9 - 12

Category: Television Production

Skills Being Applied ***(the workplace application):***
Using teamwork to develop an understanding of the team process used in television and video production.

WA State Student Learning Goals: #1 and 3
Essential Student Learning Element(s):
- Reading #2 (reads to construct meaning from a variety of texts for a variety of purposes)
- Reading #4 (uses reading to communicate, participate, and achieve personal goals)
- Writing #1 (understands and individualizes the writing process.)
- Writing #5 (writes as a member of a team)
- Communication #1 (takes responsibility for learning)
- Communication #3 (applies interpersonal communication strategies and skills to build productive relationships)
- Communication #4 (makes effective presentations using a variety of skills and communication strategies)
- Communication #6 (student evaluates the effectiveness of communication)

Amount of Time Needed to Complete Lesson: 2 class periods

Materials Needed:
- ☐ Worksheet
- ☐ Packets for each group containing forms and resource materials
- ☐ TV Production reference books

Lesson Overview:
It takes teamwork and creativity to produce a quality television program. It is important when producing a program that certain tasks are completed. Students will work together to determine the task sequence, and which production team is responsible for the task. Students will be able to demonstrate their teamwork, research, writing, and presentation skills.

Directions for Lesson/Activity/Project:
Students are divided into five groups (teams), representing the five major teams used in the production process:

1. Producer/story concept
2. Script writing
3. Pre-production
4. Production
5. Post-production

Each team is provided with a packet of information that explains their project assignment.

Each team must research their group responsibilities, and complete the worksheets to gain information regarding roles and job descriptions for their team. They use this information to prepare a presentation to the class on day two. Each group should select a spokesperson(s). They present their findings to the rest of the class, and then collaborate to determine the master sequence of events.

Note: the assignment sheets (packet of information) were taken from the International Television Association (ITVA) Handbook of Forms, second edition. Each lesson packet (5 of them) contains approximately 9 pages...too numerous to print in this handbook. Included with this lesson are a few sample pages from the first packet. If you are interested in more detailed information about the forms (how to get them), please feel free to contact Mr. Nelson at Blaine High School.

Suggested Assessment:
The class should develop an outline that resembles the examples provided. Its accuracy is determined by student performance and the level of instructor participation in the project. The instructor should give enough direction, prompting, and feedback to facilitate the process, but not so much as to predetermine the results.

References:

McQuillin, L. (1983). The Video Production Guide. Indianapolis, Sams & Co., Inc.

National Cable Television Institute, TV/Video Production.

Zettl, H. (1984). Television Production Handbook. Belmont, CA., Wadsworth Publishing Company

Forms used in this assignment are through the courtesy of International Television Association Handbook of Forms (ITVA), second edition.

TV/Video Production

The Production Team

Group Worksheet

Use additional paper as needed

Team Name______________________________

Summarize the main responsibilities of your team ____________________________

____

____

____

What sub- teams might be formed within your team? _________________________

____

____

What are the individual roles/job titles on your team?__________________________

____

____

Describe the main responsibilities for each role on your team __________________

____

____

Which planning sheets would be helpful for your team? What other forms would facilitate your job? ____

____

____

Production/ Story Concept

Title/Credits Form

Title and Credits for Project #______________

Title Roll ☐ No ☐ Yes If Yes, Please Check Speed ☐ Slow ☐ Medium ☐ Fast

Title____

Credit Roll ☐ No ☐ Yes If Yes, Please Check Speed ☐ Slow ☐ Medium ☐ Fast

Produced by______________________________________ __________

____
Presenter (add Presenter's title)

____
Content Specialist

____
Producer(s)

____
Executive Producer

____
Script Writer

____
Camera

____
Switcher

____
Graphics

____
Editing

Additional Credits and Names

Title and Credits Approved by______________________________ Date______________

Contact Person______________________________ Phone______________

Estimate Form

Production Estimate For____ Date of Estimate__________

Personnel	Rate	Hours	Estimate Total
Project Manager			
Director			
Inst. Designer/Tech.			
Content Researcher			
Writer - Inst. Materials			
Writer - Scripts			
Editor - Print			
Editor - Video			
Production Crew			
TV Engineer/Switcher			
Still Photographer			
Artist/Illustrator			
Actor(s)			
Narrator			
Other:			
Personnel Subtotal			

Activities	Rate	Hours	Estimate Total
Video - Studio Origination			
Video - Field Origination			
Video - Time Coding and Window			
Video Editing - Off-Line			
Video Editing - On-Line			
Audio - Origination and Edit			
Activities Subtotal			

Other Costs	Estimate Total
Office Supplies	
Production Supplies	
Telephone and Postage	
Travel - Local	
Travel - Other	
Other Costs Subtotal	

Overhead			
Fixed Fee			

Total Estimated Costs	

International Television Association (ITVA) Handbook of Forms, Second Edition

Program Budget

Program________________________ Date Prepared____________

Producer________________________

Item and Description	Estimated Cost	Actual Cost
Producer		
Director		
Writer/Script		
Talent		
Agency Fees		
Talent Pension and Welfare		
Talent Wardrobe		
Miscellaneous Personnel Costs		
Lighting		
Studio		
Technical Support		
Set Construction		
Construction Supplies		
Construction Personnel		
Videographer(s)		
EFP Equipment		

First Page Subtotals		

Production Tracking

Item	Projected Completion Date	Date Completed
Origination		
Consultation and Development		
Project Coordination		
Project Development		
A. Project Team Meeting		
B. Meeting Summary		
C. Research		
D. Script Outline and Treatment		
Script Development		
A. First Draft		
B. Final Draft		
C. Project Team Meeting		
D. Final Script/Storyboard Development		
E. Script/Storyboard Final Approval		
Production		
A. Pre-Production		
B. Production		
C. Post Production		
Viewing and Evaluation		
A. First Edit		
B. Final Edit		
Answer Print Viewing and Evaluation		
Project Completion Activity		
A. Final Completion Coordination		
B. Showing(s)		
Evaluation		

Audio-Visual Presentation Planning Information

Subject/Name of Program______________________________ Date__________

Client______________________ Department______________________

1. What main point(s) do you wish to make in the program (no more than five)?

2. Who is the audience? Be specific.

3. What is the audience's current attitude toward the topic (eager, skeptical, cynical)?

4. What is the audience's current knowledge of the topic?

5. Who else will see the program? Be specific.

6. What do you want them to think after viewing the program?

7. What do you want them to feel after viewing the program?

8. What do you want them to do after viewing the program?

Puget Sound Power and Light

Business Profile:

Puget Sound Power and Light Company is an investor-owned utility providing electric service to nearly 1.7 million people who live and work in a 4,500 square mile service territory covering nine counties in western Washington.

Puget Power offers school programs which include electric safety presentations delivered by *Puget Power* lineworkers, energy conservation awareness curriculum development, student tours of hydroelectric facilities at Snoqualmie Falls, and a variety of programs for students from pre-school on up. Company-sponsored workshops help educators enhance their energy, science, math, and social studies teaching skills. Company employees make spoken and media presentations on such topics as the company's history, environmental programs, power generation, and career in electric utilities.

Puget Power works with school districts to sponsor economic education through such programs as Business Week and Junior Achievement. The company also provides student and teacher internships and opportunities for "job shadowing" experiences in engineering and other disciplines.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: School-to-Work Transition

Submitted By: Gale Greer (teacher partner)
Russ VanBuren (business partner)

School: Blaine High School
Business: Puget Sound Power & Light

Career Pathway Focus: Technology and Industry
Subject Area: Special Education
Suggested Grade Level: 9 - 10

Category: Job Seeking Skills

Skills Being Applied ***(the workplace application):***
- Work ethic (coming to work regularly & on time)
- Communication skills (writing, listening, speaking)
- Interpersonal skills (appropriate social behaviors; interactions with co-workers)

WA State Student Learning Goals: #1 and 4
Essential Student Learning Element(s):
- ♦ Communication #4 (makes effective presentations using a variety of skills and communication strategies)

Amount of Time Needed to Complete Lesson: 50 minutes

Materials Needed:
☐ Paper and pencil

Lesson Overview:
Mr. VanBuren, Director of Puget Sound Power and Light company is the guest speaker for today's lesson. The focus of his presentation is job opportunities related to the level of education attainment (the message is stay in school, try hard and do your best, seek opportunities to develop academic and job-related skills). During the discussion, he will also focus on job-related skills essential for finding and keeping a job.

Directions for Lesson/Activity/Project:
Day Before:
Teacher prepares the students the day before the guest speaker is to come to class. Students talk about possible questions they would like Mr. VanBuren to answer. Ideas are brainstormed and questions written. This process helps students be better prepared and focused on the day of the presentation.

Guest Speaker:
- A discussion about how Puget Power operates...its function in the community.
- Explanation about the various types of jobs available at Puget Power.
- What are the various types of tasks that are performed on the job?

(Continued)

- What level of education is required for various jobs? What skills are required?
- What type of "person" does Puget Power prefer to hire...the personal qualities, attributes that are essential in a job application.
- Mr. VanBuren explains the job application process (applications, resumes, interview skills).

Follow-up discussion with the guest speaker.

Suggested Assessment:

1. Students will list 5 things *not* to do in a job interview, and 5 helpful things they could do to prepare for an interview (or do *during* an interview).
2. Help students review and process the written and oral information presented during the guest speakers presentation.
3. A "reflection" assignment -- the *value* of their education and how they can apply what they are learning to a work environment (their education goals related to their future career goals).

Vangard Northwest

Business Profile:

Vangard Northwest is a not-for-profit employment support service and manufacturing company all wrapped into one coordinated effort to improve employment support and vocational preparation services for adults and youth with and without disabilities in Whatcom County.

Vargard's employment support and training services are provided to youth and adults through three different programs:

The ***Supported Employment*** department contracts with the Division of Vocational Rehabilitation to assist adults with disabilities with ascertaining a vocational goal, gaining vocational skills, job development, job coaching, advocacy and job retention.

The ***Employment Training and Transition*** department has an on-site training facility where adults with severe disabilities gain employment-related skills while producing products and earning wages. These adults also have advocates who work with them to ensure a successful transition into employment in the community. Advocates research reasonable accommodation, develop community jobs, work with families and other service providers, and provide training at *Vangard* and in the community.

The ***Community and Work-Based Learning*** department coordinates community and work-based learning experiences (informational interviews, job shadows, internships, work experience, etc.) between business and education for both students and teachers. The department has been working a pilot project with the Tech Prep Consortium and four Whatcom County high schools to develop a *Clearinghouse Directory* of employers and community members that would like to partner with education to provide work-based learning opportunities for students and teachers.

Vangard also has a ***Sub-Contract Manufacturing*** department that employees people with and without disabilities. The department assembles, packages and produces several products for a variety of local companies (Allsop, Homax, Intalco, Samson Ocean Systems, etc.). The revenue generated by this department goes to support *Vangard's* other programs.

Vangard looks for workers that are dependable, and willing to learn on the job.

WORKPLACE APPLICATIONS LESSON PLAN

Lesson Title: School-to-Work Transition

Submitted By: Jim Ellis (teacher partner)
Julie Davis (business partner)

School: Blaine High School
Business: Vangard Northwest

Career Pathway Focus: Technology and Industry
Subject Area: Special Education
Suggested Grade Level: 11 - 12

Category: Job Seeking Skills

Skills Being Applied ***(the workplace application):***
- Work ethic (coming to work regularly & on time)
- Communication skills (writing, listening, speaking)
- Interpersonal skills (appropriate social behaviors; interactions with co-workers)

WA State Student Learning Goals: #1 and 4
Essential Student Learning Element(s):
- ♦ Communication #1 (takes responsibility for learning)
- ♦ Communication #2 (listens and views for understanding)
- ♦ Communication #3 (applies interpersonal communication strategies & skills to build productive relationships)

Amount of Time Needed to Complete Lesson: 1 class period (45-60 minutes)

Materials Needed:
- ☐ Paper and pencil
- ☐ Chalk board

Lesson Overview:
Ms. Julie Davis, Community Connections coordinator for Vangard Northwest is the guest speaker for today's lesson. The focus of the presentation is job related skills essential for finding and keeping a job. Julie will emphasize preparing students for a transition from school-to-work. Topics covered will help students connect what they are currently doing in school and how they can apply that skill(s) in the workplace. Julie will emphasize Career Pathway programs; Career Center resources; work-based learning experiences (informational interviews, job shadows, service learning, etc.) as opportunities for developing workplace skills at school. She will show students how their current classes will help them not only in life (communication skills, math skills) but in their transition from school-to-work.

Directions for Lesson/Activity/Project:
Day Before:
Teacher prepares the students the day before the guest speaker is to come to class. Students talk about possible questions they would like Ms. Davis to answer. Ideas are brainstormed and questions written. This process helps students be better prepared and focused on the day of the presentation.

Introduce the guest speaker...Ms. Julie Davis. The following issues will be discussed during the presentation:

- Issues related to transition from school-to-work (how to prepare for the transition; things to think about, etc.).
- How your educational experiences (school) can prepare you for the workplace.
- Employer expectations...qualities and skills expected of employees.
- Job seeking skills...how to prepare yourself.
- Some job titles; job descriptions that may interest you.
- Questions and Answers.

Emphasis...learning more about yourself; identifying your skills and abilities; connecting your skills, abilities and talents to a potential career; seek out opportunities to participate in work-based learning experiences (your school's career center) so that you can *learn* about jobs and the types of jobs that may interest you.

Suggested Assessment:
Students will answer the following 4 questions (on paper) in regards to the guest speaker's presentation. The questions will help the students reflect on their education and career plan.

1. What career pathway area or specific career are you interested in pursuing? Why?
2. What specific skills do you *currently* have that will help prepare you for this job? What skills do you need to *continue developing* (or start learning)?
3. What steps can you take now to develop an education and career plan that will help you get the job you want in the future? (Identify 3-5 things that you can do)
4. What did you learn today? List 3 key ideas that you want to remember.